

**U.S. Army
Environmental
Center**

Phase 2 Remedial Investigation Report Army Materials Technology Laboratory

Task Order 1 Remedial Investigation/Feasibility Study

Contract Number DAAA15-90-D-0009

Volume 4 - Appendices A - J

May 1994

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Prepared by:



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FINAL

Task Order 1

**PHASE 2 REMEDIAL INVESTIGATION FOR BASE CLOSURE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
ARMY MATERIALS TECHNOLOGY LABORATORY
WATERTOWN, MASSACHUSETTS**

Contract No. DAAA15-90-D-0009

VOLUME 4

May 1994

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Work Order No. 2281-11-01-0050



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VOLUME 4

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Appendix A

Soil Boring Logs

ROY F. WESTON, INC.
 CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY
 LOCATION: WATERTOWN, MA
 WORK ORDER NUMBER: 2281-11-01

WELL LOG
 WELL NUMBER: 01SB-1
 PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.
 DRILLING DATES: 10-13-91
 INSPECTOR: Greg Hall
 BOREHOLE DEPTH: 18.0 FT. BELOW GROUND SURFACE
 WELL DEPTH: NA FT. BELOW TOP OF PVC CASING
 ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL
 GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG	DAVEY KENT
SAMPLER	1 3/8" SPLIT SPOON
HAMMER WEIGHT	140 lb
LENGTH OF FALL	30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			(co) Moist, loose, non plastic 10yr 5/3 med Sand	
			20		
			30		
	2		32		75% recovery
			21		
			53	Moist, loose, non plastic non-sorted sand with silt & gravel and crushed brick.	
			50		25% recovery
	4		28		
			6	Moist, moderate plasticity, silt (sm) silty Sand with Gravel and Ash.	
			5		25% recovery
	6		7		
			11	Moist, 10yr 2/1 loose, non plastic silty Sand with some Gravel and broken asphalt (E11).	
			12		50% recovery
	8		7		
			5	Moist 10yr 5/3 loose, non plastic sandy loam.	
			5		25% recovery
	10		9		
			21	10-11 Moist 10yr 3/1, loose, non plastic silty Sand with Gravel (SW-SM)	
			14		
	12		17	11-12 Dry 10yr 2/4 loose, non plastic med Sand.	75% recovery
			26		
			33	10yr 7/4 Moist, loose, non plastic M-C Sand. (SW)	
			36		75% recovery
	14		50		
			22	10yr 3/4 Moist, loose, non plastic m-c Sand with Gravel. (SW)	
			25		100% recovery
	16		33		
			47		
	18		29	15-17.5 Saturated, 10yr 3/3 loose, non plastic med Sand. (SW)	
			33		
			55	17.5-18 Saturated, 2yr 5/1 loose, non plastic Sand with Gravel. (SW)	100% recovery
			46		
				End of boring 18'	
	20				
	22				
	24				

COMMENTS: Field screening results did not detect gamma radiation or VOCs.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 01SB-2

PAGE: OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-17-91

INSPECTOR: Greg Hall

BOREHOLE DEPTH: 21.0 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DANEY KENT

SAMPLER: 1 3/8" SPLIT SPoon

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-0.5' Asphalt	
			15	0.5-2.0' Dry, loose, nonplastic fine to medium sand and crushed stone fill.	75% recovery
	2		37		
			40		
			50/3	10y 3/2 Moist, loose, nonplastic Sand and Gravel.	
	4			(SP)	10% recovery
			20	Same as 2' to 4'.	
			13		
			6	(SP)	10% recovery
	6		5	No sample recovery	
			2		
			5		
			7		
	8		10		0% recovery
			5	Dry, loose, nonplastic, 10y 2/2 Sand.	
			7	(SP)	
	10		12		50% recovery
			15	Moist loose, 10y 6/4, nonplastic (SW) interbedded fine to med Sand.	
			17		
	12		22		100% recovery
			32	2' 13.1' Moist, nonplastic, loose (SW) medium Sand, 10y 5/4	
			19	3.1 - 3.5' Moist, 10y 5/2 Firm nonplastic Fine Sand.	
	14		50/3		100% recovery
				Dry, loose, nonplastic Sand and Gravel. (SW)	
	16				100% recovery
	17				
			15	17-17.2 Same as 14'-16' (SW)	
	18		6	17.2-17.7 10y 5/3 Moist, stt, Fine Sand	4. No - Suits
			13		
	19		11	17.7-19 5y 5/1 Moist, nonplastic, Firm sandy clay.	75% recovery
			10		
	20		13	Saturated, high plasticity, stt 5y 5/1 Clay. (CH)	
	21		15		100% recovery
	22			End of boring at 21'.	
	24				

COMMENTS: Unless otherwise indicated field screening results for gamma radiation and VOC's at background.

ROY F. WESTON, INC. CLIENT: Army Fee Materials Technology Laboratory LOCATION: 2281-11-01 Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-01SB-3 PAGE 1 OF 1									
DRILLING CONTRACTOR: R & R, Inc. DRILLING DATES: 10/8/91 INSPECTOR: Greg Hall BOREHOLE DEPTH: 18.0 FT. BELOW GROUND SURFACE WELL DEPTH: ____ FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: ____ FT. AMSL GROUNDWATER ELEVATION: 14.4 FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">DRILL RIG</td> <td>DK 5W</td> </tr> <tr> <td>SAMPLER</td> <td>1 3/8" Split-Spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	DK 5W	SAMPLER	1 3/8" Split-Spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILL RIG	DK 5W												
SAMPLER	1 3/8" Split-Spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
	0		—	GM-GM ≥ 15% sand; dry, loose, no plasticity (fill material); variegated	augured through top 6" of asphalt; 25% recovery								
	1		11										
	2		17										
	3		21										
	4	01SB-3-2	25	GW-GM ≥ 15% sand; dry, loose, no plasticity (fill material); 10YR 6/6	not enough for lithologic sample 50% recovery								
	5		16										
	6		11										
	7		9										
	8			GW-GM ≥ 15% sand (4.0"-4.4"); dry, loose, no plasticity; fill material; 10YR 6/6	not enough for lithologic sample 50% recovery								
	9	01SB-3-4		ML < 15%; moist, stiff, low plasticity 10YR 5/4	100% recovery								
	10			ML < 15%; moist, stiff, low plasticity 10YR 5/4	100% recovery								
	11												
	12			ML < 15%; moist, stiff, low plasticity 10YR 5/4	100% recovery								
	13	01SB-3-6		ML < 15%; moist, stiff, low plasticity 10YR 5/4	100% recovery								
	14												
	15			ML < 15%; moist, stiff, low plasticity 10YR 5/4	100% recovery								
	16			ML < 15%; sand, gravel; moist, stiff, low plasticity; ~5% clay; 10YR 5/4	100% recovery								
	17												
	18												
	19												
	20												
	21												
	22												
	23												
	24												
	25												
COMMENTS: TOTAL DEPTH TO WATER TABLE ~ 16' 01SB-3													

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 02SB-1

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11-11-91

INSPECTOR: Jim Warr

BOREHOLE DEPTH: 1.4 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DANEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-1.4' Concrete floor. Augered through electrical conduit at 1.4'	
	2				
	4				
	6				
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS: Boring terminated at 1.4'



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 02SB-2

PAGE / OF /

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11-10-91

INSPECTOR: RICHARD EICHTORN

BOREHOLE DEPTH: 16 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-1' CONCRETE FLOOR	
				1-2' 16yr 4 1/2 R/S	
			24	NO RECOVERY	
			12		
	2		14	10yr 4 1/2 Dry, SOFT, nonplastic	
			34	POURING SORTED SANDS, 20% SUBMY.	
			53	(SW) gravel	
			50/1		50% recovery
	4		8	10yr 5 1/2 - 10yr 6 1/2 Dry, SOFT, nonplastic	
			18	VERY FINE SAND AND SILT, TRACE	
			24	(ML-SM) MED SAND IN UPPER 5'	
			13		50% recovery
	6		26	10yr 6 1/2 Dry, firm, nonplastic	
			50/2	SILT, 40% FINE SAND, 1" THICK	
				(ML) bed of FINE SAND w/ 30% SILT	50% recovery
	8		70	10yr 6 1/2 Dry, loose, nonplastic	
			50/3	SILT, 40% FINE SAND, TRACE SUBMY.	
				(ML) gravel.	50% recovery
	10		29	10yr 4 1/3 WET, STIFF, MOD PLASTIC	
			20	SILT AND CLAY, 1-2 LENSES w/	
			20	(CL) 10% FINE SAND.	H ₂ O = 8 units (moisture?)
			30		75% recovery
	12		12	10yr 4 1/3 WET, STIFF, HIGH PLASTIC.	
			17	CLAY, 10% SILT	
			12	(CH-CL)	H ₂ O = 2 units (moisture?)
	14		8	10yr 4 1/3 SATURATED, STIFF, HIGH PLASTICITY	
			7	CLAY, 10% SILT	
			8	(CH-CL)	75% recovery
	16		8		100% recovery
	18				
	20				
	22				
	24				

COMMENTS:

Being terminated @ 16'
NO FILL ENCOUNTERED



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 025B-3

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DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11-10-91

INSPECTOR: RICHARD EICHEN

BOREHOLE DEPTH: 16 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-1': CONCRETE FLOOR	
				1-2': 10yr 2/2 DAMP, SOFT, NONPLASTIC SILT, 10% FINE SAND, TRACE ORGANICS	
			8	(ML)	70% recovery
	2		7		
			18	10yr 6/3 Dry, STIFF, NONPLASTIC	
			18	POORLY SORTED SAND, 10% SUBANG. GRAVEL.	
			34	(SW)	40% recovery
	4		42		
			10	10yr 5/3 Dry, SOFT, NONPLASTIC	
			35	POORLY SORTED SAND, 20% SUBANG. GRAVEL.	
			56	(SW)	50% recovery
	6		56		
			67	10yr 5/3 Dry, SOFT, NONPLASTIC	
			43	POORLY SORTED SAND, 40% FINE TO COARSE SUBANG. GRAVEL	
			41	(SW)	50% recovery
	8		56		
			21	10yr 5/4 DAMP, STIFF, NONPLASTIC MOD. PLASTIC	
			17	SILT, 20% CLAY, 10% VERY FINE SAND	
			21	(ML)	50% recovery
	10		18		
			14	10yr 5/4 WET, STIFF, HIGH PLASTIC.	
			12	CLAY AND SILT, APPROX 50% EACH.	
			18	(CL)	75% recovery
	12		13		
			17	10yr 5/4 WET, STIFF, LOW PLASTIC.	
			21	SILT, 20% CLAY	
			21	(ML)	80% recovery
	14		12		
			14	10yr 5/4 SATURATED, STIFF, HIGH PLASTIC.	
			18	CLAY: 25% SILT. OCCASIONAL 1/4" SILT & FINE SAND LAGERS.	
			12	(CL)	100% recovery
	16				
	18				
	20				
	22				
	24				

COMMENTS:

- Boring terminated @ 16'.
- ALL HNU & CAS READINGS @ background levels.
- NO FILL ENCOUNTERED.

ROY F. WESTON, INC.
 CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY
 LOCATION: WATERTOWN, MA
 WORK ORDER NUMBER: 2281-11-01

WELL LOG
 WELL NUMBER: 02SB4
 PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.
 DRILLING DATES: 10-13-91
 INSPECTOR: Greg Hall
 BOREHOLE DEPTH: 18.0 FT. BELOW GROUND SURFACE
 WELL DEPTH: NA FT. BELOW TOP OF PVC CASING
 ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL
 GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG	DAVEY KENT
SAMPLER	1 3/8" SPLIT SPEDON
HAMMER WEIGHT	140 lb
LENGTH OF FALL	30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-1.0 Asphalt, crushed stone	100% recovery
				1'-2" loose, dry, 10yr 2/1 Sand & (SP) Gravel with silt and asphalt mixed in.	H Nu = 7 units
	2		17		
			25		
			9	Unsorted, moist, loose, low plasticity Silt with Clay and Gravel and asphalt (ML)	H Nu = 7 units
			4		
			6		
	4		47		50% recovery
			42		
			50/1"	Moist, loose, non plastic Sand & Gravel with Asphalt. 10yr 2/1 (SP)	H Nu = 5 units
	6		21		100% recovery
			50/5"	10yr 5/3 Dry, loose, non plastic Sand & Gravel. (SP)	
	8		8		75% recovery
			10	No sample recovery.	
	10				0% recovery
			52	Moist, firm, moderate plasticity 10yr 5/2 silty Clay. (CH)	
			24		
			36		
	12		37		75% recovery
			15	2-12.8 Same as 10-12" (CH)	
			15		
			20	12.5-14" Moist, firm, non plastic 10yr 5/3 fine Sand. (SW)	50% recovery
	14		10		
			6	10yr 5/3 Moist, firm, non plastic to moderate plasticity interbedded (SC) clay, silt, and fine sand.	H Nu = 7 units
			9		100% recovery
			12		
	16		14		
			13	16-16.9 Saturated same as 1-10.6 (SC)	
			32	16.9-17.6 10yr 5/3 Moist non plastic F. Sand	
			7	17.6-18 Moist, stiff, plastic 10yr 5/3 Clay	95% recovery
	18		30	End of boring 18'	
	20				
	22				
	24				

COMMENTS: Unless otherwise indicated Field screening results for gamma radiation and VOC's at background.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 0358-1

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11-11-91

INSPECTOR: Richard Eichmann

BOREHOLE DEPTH: 1.0 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-0.75' - Cored through 0.75' of concrete. Collect soil for chemical analysis at 0.75'	
	2				
	4				
	6				
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring 0358-1 inside building 43. Can not access with drill rig therefore core through concrete with hand-operated coring machine and collected soil sample for analysis at soil/concrete interface.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-C1

WELL LOG

WELL NUMBER: 03SB-2

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11/9/01

INSPECTOR: Tim Warr

BOREHOLE DEPTH: 24 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-0.55' Concrete floor.	
		22		10YR 3/2, Wet, soft, non plastic, f-c	
		24		(SW) Sand, 10% silt, 10% subangular gravel and brick.	
	2	10			53% Recovery
		6			
		4		No Recovery. Brick in nose of spoon.	
		6			
	4	14			No Recovery
		10		Upper 0.6' 10YR 3/2, Dry, soft, non plastic, f-m	Piece of slag
		12		(sm-sm) Sand, 15% silt, 15% c. sand and gravel.	
		14		Lower 0.7' 10YR 6/6, dry, soft, non plastic, f.	
		9		(SP) sand, 5% silt, 5% subangular gravel.	65% Recovery
	6	20		Upper 0.4' 10YR 6/6, dry, soft, non plastic, f. sand, 5%	
		23		(SP) m-c sand, 5% silt.	
		25		Middle 0.6' 10YR 6/3, f-c sand, 10% subangular gravel, 5% silt.	
		50/2		Lower 0.8' 10YR 7/6, dry, soft, non plastic, f. sand 5% silt.	65% Recovery
	8	43		(SP)	
		50		Upper 0.4' 10YR 3/2, moist, soft, non plastic, f. sand,	
		40		(SP) 15% silt, 4% organics. Possible buried fuel.	
		40		Middle 0.2' 10YR 5/4, dry, soft, non plastic, silty f. sand,	
		32		(SM) 10% c. sand and subangular gravel.	
	10	17		Lower 0.9' 10YR 6/4, f-c sand, 10% silt, 15% sub ang	65% Recovery
		14		(SW)	
		23		10YR 6/3, dry, soft, non plastic, f-c sand,	
		32		(SW) 10% subangular gravel, 5% silt.	70% Recovery
	12	22			
		33		10YR 5/4, dry, soft, non plastic, f-c sand,	Piece of brick
		36		(SW) 15% subangular gravel, 5% silt.	
	14	27			65% Recovery
		12		10YR 5/4, dry, soft, non plastic, f-c	
		14		(SW) sand, 10% subangular gravel, 5%	
	16	23		silt.	30% Recovery
		12		10YR 5/6, damp, soft, non plastic, f-m sand,	
		16		10% c. sand and sub angular gravel,	
		25		5% silt.	75% Recovery
	18	33		Upper 0.2' 10YR 6/3, dry, soft, non plastic, f. sand,	
		20		(SP) 15% c. sand and sub angular gravel.	
		25		Lower 1.5' 10YR 5/4, moist, soft, non plastic, silty	
		30		(SM-SC) f. sand, 10% clayey silt, interbeds every 5"	85% Recovery
	20	31		10YR 6/2, saturated, soft, non plastic, silty	
		20		fine sand. Soil soaked with	HMU 10ppm
		16		petroleum product. Smaller like fuel	
	22	13		oil.	75% Recovery
		9			
		12		10YR 5/2, saturated, stiff, highly plastic, alternating	Smaller like fuel
		13		silty fine sand and silty clay. Silty	oil. HMU not working
	24			clay beds 2"-4" thick.	90% Recovery

COMMENTS: Boring terminated at 24'.
Bottom of fill encountered at 16'.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 45B-1
GRSB-4

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-27-91

INSPECTOR: RICHARD EICHORN

BOREHOLE DEPTH: 2.5 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-1.5' ASPHALT ROADWAY & BASE MATERIAL	
			23	1.5-1.8' 10yr 2 1/2-5/3 Dg, LOOSE NONPLASTIC	
			50/3	45% FINE-COARSE SAND, 45% SILT, 10% SUBANG. GRAVEL	
	2			(SM)	40% recovery
				Spoon refusal on metal object at 2.5'	
	4				
	6				
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated due to auger/spoon refusal on a metal object at 2.5'
ALL HNU and RAD readings at background levels
No substantial thickness of fill encountered below asphalt base course.

ROY F. WESTON, INC. CLIENT: US ARMY USATHAMA LOCATION: Watertown Ars. Watertown MASS. WORK ORDER NUMBER: 2291-11-01-0040						WELL LOG WELL NUMBER: RFW-MW-21 PAGE 1 OF 3 055B1									
DRILLING CONTRACTOR: R & R International INC DRILLING DATES: 10/2/91 - 10/11/91 INSPECTOR: Jenn Kelly, Steven O'Shea BOREHOLE DEPTH: 69.5 FT. BELOW GROUND SURFACE WELL DEPTH: 68.9 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL						DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">DRILL RIG</td> <td style="padding: 2px;">CME 75</td> </tr> <tr> <td style="padding: 2px;">SAMPLER</td> <td style="padding: 2px;">1 3/8" SS</td> </tr> <tr> <td style="padding: 2px;">HAMMER WEIGHT</td> <td style="padding: 2px;">140 lbs</td> </tr> <tr> <td style="padding: 2px;">LENGTH OF FALL</td> <td style="padding: 2px;">30"</td> </tr> </table>		DRILL RIG	CME 75	SAMPLER	1 3/8" SS	HAMMER WEIGHT	140 lbs	LENGTH OF FALL	30"
DRILL RIG	CME 75														
SAMPLER	1 3/8" SS														
HAMMER WEIGHT	140 lbs														
LENGTH OF FALL	30"														
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES										
<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> 1" Portland + Bentonite 1" Riser </div>	0	0555-1	1	OL/OH Dark Brown Silty organic Topsoil											
	1		2	SW gray Fine to coarse < 15% gravel < 5% silt											
	2		3	GW - well graded gravel and F-c sand few cobbles											
<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> 1" Portland + Bentonite 1" Riser </div>	5		4	SW-SM Brown Fine - coarse sand little F-c gravel < 10% fines											
	6		10												
	7		15												
<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> 1" Portland + Bentonite 1" Riser </div>	10		12	same as above (SW - SM)											
	11		18												
	12		22												
<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> 1" Portland + Bentonite 1" Riser </div>	15		14	ML Brown silt and sandy silt with small scale clay beds. Horizontal Bedding											
	16		15												
	17		18												
<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> 1" Portland + Bentonite 1" Riser </div>	20		5	same as above (ML)											
	21		10												
	22		14												
<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> 1" Portland + Bentonite 1" Riser </div>	25		3	same as above (ML)											
	26		8												
	27		16												
COMMENTS: MW-21 installed at this location															

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC. CLIENT: US Army USATHAMA LOCATION: Watertown Arsenal: Watertown MA WORK ORDER NUMBER: 2291-11-01-0040					WELL LOG WELL NUMBER: RFW-MW-21 PAGE 2 OF 3									
DRILLING CONTRACTOR: R & R International Inc DRILLING DATES: 10-9-91 to 10-11-91 INSPECTOR: John Kelly, Steve O'Brien BOREHOLE DEPTH: 69.5 FT. BELOW GROUND SURFACE WELL DEPTH: 68.9 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL					DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">DRILL RIG</td> <td style="padding: 2px;">CME -75</td> </tr> <tr> <td style="padding: 2px;">SAMPLER</td> <td style="padding: 2px;">1 3/8" SS</td> </tr> <tr> <td style="padding: 2px;">HAMMER WEIGHT</td> <td style="padding: 2px;">140 lbs</td> </tr> <tr> <td style="padding: 2px;">LENGTH OF FALL</td> <td style="padding: 2px;">30"</td> </tr> </table>		DRILL RIG	CME -75	SAMPLER	1 3/8" SS	HAMMER WEIGHT	140 lbs	LENGTH OF FALL	30"
DRILL RIG	CME -75													
SAMPLER	1 3/8" SS													
HAMMER WEIGHT	140 lbs													
LENGTH OF FALL	30"													
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES									
<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> Bentonite grout Portland Cement Riser </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> Bentonite grout Portland Cement Riser </div> </div>	25 30 35 40 45 50	8 16 15 14 6 9 22 23 7 8 12 33 9 10 10 10 10 14 26 35 9 10	ML Brown Sandy silt with small scale 2cm gray clay beds. Horizontal bedding some iron stains Same as above (ML) Same as above (ML) CL mottled silty fine sand with some gray clay beds ML Brown Sandy silt CH Brown gray clay interbedded with Brown silty sands ML Brown Sandy silt with few gray clay lenses CL gray sandy lean clay with lenses of gray silty sand ML Brown sandy silt											
COMMENTS:														

FIGURE A3-2 BOREHOLE/WELL LOG SHEET



ROY F. WESTON, INC. CLIENT: U.S. Army USATHAMA LOCATION: Watertown Arsenal Watertown, MA WORK ORDER NUMBER: 2281-11-01-0040				WELL LOG WELL NUMBER: RFW-MW-21 PAGE 3 OF 3 055B4									
DRILLING CONTRACTOR: R & R International DRILLING DATES: 10-9-91 - 10-11-91 INSPECTOR: John Kelley, Steven O'Brien BOREHOLE DEPTH: 59.5 FT. BELOW GROUND SURFACE WELL DEPTH: 68.9 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">DRILL RIG</td> <td style="padding: 2px;">CME - 75</td> </tr> <tr> <td style="padding: 2px;">SAMPLER</td> <td style="padding: 2px;">1 3/4" SS</td> </tr> <tr> <td style="padding: 2px;">HAMMER WEIGHT</td> <td style="padding: 2px;">140 lbs</td> </tr> <tr> <td style="padding: 2px;">LENGTH OF FALL</td> <td style="padding: 2px;">30"</td> </tr> </table>		DRILL RIG	CME - 75	SAMPLER	1 3/4" SS	HAMMER WEIGHT	140 lbs	LENGTH OF FALL	30"
DRILL RIG	CME - 75												
SAMPLER	1 3/4" SS												
HAMMER WEIGHT	140 lbs												
LENGTH OF FALL	30"												
WELL CONSTRUCTION 	DEPTH (FEET) 50 55 60 65 70 75	SAMPLE NUMBER 9 10 14 17 20 22 25 100/15	BLOWS PER 6 INCHES 9 10 14 17 20 22 25 100/15	CLASSIFICATION ML Brown sandy silt SP-SM Brown gray Fine sand little silt SP-SM same as above with little silt lenses SP-SM Brown gray silty sand Traces of gray clay GW-GC Brown gray (Till) silt and fine sand little gravel Dense gravelly glacial Till some 1-2' Boulders Tough drilling 69'6" Auger Refusal ECIB Possible Bedrock	NOTES								
COMMENTS:													

FIGURE A3-2 BOREHOLE/WELL LOG SHEET



ROY F. WESTON, INC.

CLIENT: ARMA MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 0558-2

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-24-91

INSPECTOR: TIM WARR

BOREHOLE DEPTH: 12. FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		3	0-0.5 10yr 3/4 SOFT, DRY, nonplastic FINE (SM-PT) SAND, 20-35% silt, 20-55% organic, roots	
			11		
			11		
			16	0.5-1.9 10yr 3/2 FINE-COARSE SAND, TRACE SILT, tr FINE SUBANG. YOUNG SOFT, DRY nonplastic	95% recovery
	2		20	upper .5' 10yr 3/2, FIRM, DRY, nonplastic (SP) FINE to med sand, 20% COAL	
			31		
			19	lower .8' fragments 10yr 3/3 FINE SAND, trace gravel	65% recovery
	4		20		
			7	upper .3' 10yr 3/3, SOFT, DRY, nonplastic, FINE (SP) to medium sand, trace silt, trace gravel	
			15		
			29	lower 1' 10yr 6/4 F-C SAND, 20% gravel, trace	65% recovery
	6		64		
			80/5"	10yr 6/3 SOFT, dry, nonplastic (SW) FINE-COARSE SAND, TRACE SILT 15% subang. gravel	Cobbles: 6.5-8.0" 20% recovery
	8				
			27	upper .7' 10yr 3/3, SOFT, moist moist, nonplastic, FINE-COARSE SAND, TRACE SILT, TRACE gravel (subang.)	
			20		
			13	(SW)	75% recovery
	10		10		
			13	10yr 6/3 STIFF, SATURATED, LOW PLASTICITY SILT, TRACE FINE SAND, TRACE CLAY	
			30		
			16	(SM)	75% recovery
	12		19		
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 12'

End of fill encountered at 4'

ALL HWS and RAD READINGS at background levels.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 0653-1
MW-15A

PAGE 1 OF 3

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-10-91

INSPECTOR: Greg Hall

BOREHOLE DEPTH: 63.5 FT. BELOW GROUND SURFACE

WELL DEPTH: 61.9 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPCON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW 15A installed See well log for well construction details	0			0-0.5 10yr 3/2 Silty loam topsoil (ML)	
			10	0.5-2.0 10yr 2 Dry, nonplastic, loose	
			16	(ML) Silty silt with some gravel	
	2		17	Fill	75% recovery
			15	10yr 6/2 Dry, loose, nonplastic	
			27	coarse sand and gravel (fill).	
			36	(SP)	
	4		45		50% recovery
			102/13	10yr 4/4 Moist, low plasticity	
			19	(MH) Sandy silt with Gravel.	
	6		48		25% recovery
			10	10yr 5/3 Dry, loose, non	
			17	(SP) plastic coarse sand and	
			32	Gravel fill.	
	8		27		75% recovery
			13	Same as 6' to 8' Fill	
			31	(SP)	
	10		33		75% recovery
			12	10-10.5 Same as 6' to 10' (SP)	
			13	Shard contact	
	12		13	(SM) 10yr 4/4 Moist, firm silty	
			15	Sand to silty clay.	75% recovery
			17	(SM) 10yr 4/4 Moist, stiff mod	
			18	plasticity inter-bedded silty	
	14		23	(CH) fine sand to silty clay.	75% recovery
			20		
			2	10yr 3/3 Moist, stiff sandy	
			10	(ML) silt with gravel	
	16		8		100% recovery
			10	10yr 5/2 Saturated, stiff inter-	
			12	(SM) bedded silty fine sand and	
	18		14	(CH) clay.	100% recovery
			13		
			6	Same as 16'-18'.	
	20		13		100% recovery
			2		
			23		
	22				
	24				

COMMENTS: Begin 5-foot sampling interval at 20 feet
Field screening results indicate no gamma radiation or VOC's detected.

ROY F. WESTON, INC. CLIENT: Army Materials Testing Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: 06 SB1 PAGE 2 OF 3									
DRILLING CONTRACTOR: R & R International Inc. DRILLING DATES: 10-10-91 INSPECTOR: Greg Hall BOREHOLE DEPTH: 53.5 FT. BELOW GROUND SURFACE WELL DEPTH: 51.9 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">DRILL RIG</td> <td style="padding: 2px;">Dacey Kent</td> </tr> <tr> <td style="padding: 2px;">SAMPLER</td> <td style="padding: 2px;">1 3/8" split-spoon</td> </tr> <tr> <td style="padding: 2px;">HAMMER WEIGHT</td> <td style="padding: 2px;">140 lb</td> </tr> <tr> <td style="padding: 2px;">LENGTH OF FALL</td> <td style="padding: 2px;">30"</td> </tr> </table>		DRILL RIG	Dacey Kent	SAMPLER	1 3/8" split-spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILL RIG	Dacey Kent												
SAMPLER	1 3/8" split-spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
MW 15A Installed See well log for well construction details.	25			25-26.2' 10yr 7/3 Moist, firm (MH) Silt with some sand and clay	100% recovery								
	26		6										
	27		5	26.2-27' 5yr 4/1 Moist, stiff, high (CH) plasticity clay									
	28		7										
	29		14										
	30				30-30.4 10yr 6/1 Saturated, loose (MH) silt with clay	100% recovery							
	31		6										
	32		8	30.4-31.6 10yr 5/3 Moist, stiff (CH) high plasticity, silty Clay									
	33		15	31.6-32' 10yr 6/1 Saturated, (MH) loose Silt with clay.									
	34		21										
	35				35-35.9 10yr 5/3 Saturated, firm (MH) Silt with Clay	100% recovery							
	36		5										
	37		12	35.9-36.2 10yr 5/1 Moist, stiff (CH) moderate plasticity silty Clay.									
	38		15	36.2-37' 10yr 6/3 Saturated, loose (MH) Silt with clay.									
	39		20										
	40				40-40.9 10yr 6/3 Saturated, (MH) loose Silt with clay.	100% recovery							
	41		5										
	42		1	40.9-41.3 10yr 5/1 Moist, stiff (CH) high plasticity Clay									
	43		3	41.3-42' 10yr 6/3 Saturated (MH) loose thinly laminated Silt and silt with clay.									
	44		15										
45				45-46.5 Moist, Firm, 10yr 7/2 (MH) Sandy Silt.	100% recovery								
46		8											
47		12	46.5-47' Moist Firm 10yr 7/2 (CH) Silt Clay.										
48		15											
49		38											
50													

COMMENTS: Field screening results indicate no gamma radiation or VOCs detected

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC. CLIENT: Army Materials Testing Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: 06581 PAGE 3 OF 3									
DRILLING CONTRACTOR: R & R International, Inc. DRILLING DATES: INSPECTOR: BOREHOLE DEPTH: 53.5 FT. BELOW GROUND SURFACE WELL DEPTH: 61.9 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRILL RIG</td> <td>Davey Kent</td> </tr> <tr> <td>SAMPLER</td> <td>2 3/8" split spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	Davey Kent	SAMPLER	2 3/8" split spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILL RIG	Davey Kent												
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HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
MW 15A installed See well log for well construction details.	50		17	50-51.5 py-8/3 Saturated, loose (MH) Silt with clay.	100% recovery								
	51		23										
	52		31										
	53		69										
	54			51.5-52.0 py-8/3 Moist, firm (CH) Clay with sand.	100% recovery								
	55		72										
	56		79										
	57		100										
	58		80	Poorly sorted, saturated loose, Clay, silt and coarse sand with angular gravel. (fill)	100% recovery								
	59												
	60												
	61												
	62			Same as above (fill).	100% recovery								
	63		53										
	64		76										
	65		100										
	66		54	63.5' Auger Refusal									
	67												
	68												
	69												
	70												
	71												
	72												
	73												
	74												
75													
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117													
118													
119													
120													
121													
122													
123													
124													
125													

COMMENTS: Field screening results indicate no gamma radiation or VOCs detected.

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-065B-2 PAGE 1 OF <u> </u>									
DRILLING CONTRACTOR: R&R, Inc. DRILLING DATES: 10/9/91 INSPECTOR: Greg Hall BOREHOLE DEPTH: 18' FT. BELOW GROUND SURFACE WELL DEPTH: NA FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">DRILL RIG</td> <td>Davey Kent</td> </tr> <tr> <td>SAMPLER</td> <td>1 3/8" split spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	Davey Kent	SAMPLER	1 3/8" split spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILL RIG	Davey Kent												
SAMPLER	1 3/8" split spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
No well installed	0	065B-2-0	8	BL/DH (15-25% sand, gravel) dry,	50% recovery								
		065B-2-1	16	loose, no plasticity 10YR 2/2 (0-1.2')	not enough for lithologic sample								
			27										
			17										
	2		10	SC (<15% gravel) fine-grained, stiff, dry, low	50% recovery								
			10	plasticity 10YR 6/1 (2'-3')									
			11										
			9										
	4		3	SC (<15% gravel) fine-grained, stiff, dry,	50% recovery								
			6	low plasticity; 5% sand 10YR 6/1 (4'-5.2')									
	5		5										
			6										
	6		6	CL (<15% sand, gravel) some silt noted; stiff,	75% recovery								
			6	wet, med. plasticity 10YR 6/1 (6'-7.4')									
			5										
			5										
	8		2	CL (<15% sand, gravel) wet, stiff, med. plasticity,	75% recovery								
			2	variegated (8'-8.3')									
			19	GW-GM (>15% sand) dry, loose, no plasticity,									
			78	variegated, Fe-staining (8.7'-9.3')									
10		4	SC (<15% gravel) stiff, moist, low plasticity,	75% recovery									
		13	10YR 5/1 (10'-11')										
		21	SW-SM (>15% gravel) loose, dry, no plasticity										
12		15	10YR 8/2 (11'-11.3')										
		8	CL (<15% sand, gravel) some silt, stiff, moist,										
		20	med. plasticity 10YR 5/2										
		21	CL (<15% sand, gravel) stiff, moist, med. plasticity,	75% recovery									
14		25	10YR 7/3 (12'-13.6')										
		12	CL (15%-25%) lean clay w/sand, stiff,	95% recovery									
15		11	moist, med. plasticity 10YR 5/2										
		11	(14'-15.8')										
16		12											
		13	SC (<15% gravel) fine sand, stiff, moist,	100% recovery									
		12	low-med. plasticity 10YR 5/1 (16'-18')										
		12											
		11											
			18' End of Boring										
	20												
	25												

COMMENTS: 065B-2 ; All HNu and RAD readings at background.

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 06533

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-11-91

INSPECTOR: Greg Hall

BOREHOLE DEPTH: 20.0 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG	DAVEY KENT
SAMPLER	1 3/8" SPLIT SPCON
HAMMER WEIGHT	140 lb
LENGTH OF FALL	30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-0.5 Asphalt	
			20		
			20		
			21		
	2		23		25% recovery
			16	No sample recovery	
			16		
			12		
	4		13		0% recovery
			7	Dry loose sand, gravel, clay, (SP-SG) and asphalt (Fill).	
			8		
			7		
	6		8		50% recovery
			21	Dry loose Sand and Gravel (SP-SG) with some Clay (Fill).	HNu - 8 units
			34		
			41		
	8		51		50% recovery
			26	Bricks, cobbles, Sand & (Fill) Gravel. (SP)	HNu - 10 units
			25		
			53		
	10		26		70% recovery
			40	(SP) Fill material same as 8'-10'.	
			70		
			83		
	12		71		75% recovery
			85	Dry, loose, nonplastic Sand and cobbles with little Silt. (SP-SM)	
			57		
			55		
	14		50/0.1'		70% recovery
			53	14-15' Same as 12' to 14' (SP-SM)	HNu - 15 units
			12		
			10		
	16		12	15-16' 10y 5/2 Dry, st: 4, mod plastic (CH) Silty Clay.	75% recovery
			12	Same as 15' to 16' (CH)	
			13		
			15		
	18		26		100% recovery
			5	10y 6/2 St: 4, mod plasticity (CH) Silty Clay. Soil saturated at 20 feet.	
			14		
			13		
	20		16		100% recovery
				End of Boring 20'	
	22				
	24				

COMMENTS: Unless otherwise indicated field screening results for gamma radiation and VOCs at background.

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-06SB-5 PAGE 1 OF 3		
DRILLING CONTRACTOR: R & R, INC. DRILLING DATES: 10/9 - 10/10/01 INSPECTOR: Greg Hall BOREHOLE DEPTH: 71.0 FT. BELOW GROUND SURFACE WELL DEPTH: 69.6 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT		
				DRILL RIG	Dacey Kent	
				SAMPLER	1 3/8" split spoon	
				HAMMER WEIGHT	140 lb	
				LENGTH OF FALL	30"	
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES	
MW 17A installed See well log for well construction details	0	06SB-5-0	12	OL/OH (<15% gravel); dry, loose, no plasticity	50% recovery	
			9	10YR 4/2 (0-1")	not enough for lithologic sample	
			13	GW (>15% sand); dry, loose, no plasticity, variegated (1'-1.4') (fill material?)		
	2		7			
			24	SM (>15% gravel); dry, loose, no plasticity, color varies (2'-3'); some asphalt tar present (fill material?)	50% recovery	
			13			
			19			
	4		18			
			43	SM (>15% gravel); dry, loose, no plasticity	50% recovery	
	5		13	10YR 3/1 (4'-4.5')		
			25	SW (>15% gravel); dry, loose, no plasticity; 10YR 5/4 (4.5'-5')		
	6		27			
			29	SW (<15% gravel); dry, loose, no plasticity, 10YR 5/4 (6'-7.5')	75% recovery	
			25			
			60			
	8		51			
			48	SW (<15% gravel); dry, loose, no plasticity	100% recovery	
	9		60	10YR 5/4 (8'-9')		
	10			AUGURED THROUGH ROCK	NO RECOVERY	
				5	SW (<15% gravel); dry, loose, no plasticity, 10YR 5/4 (10'-10.5')	75% recovery
				8		
				12	SM (<15% gravel); moist, firm, low plasticity	
	12			14	10YR 5/3 (10.5'-11.5')	
				14	SM (<15% gravel); moist, firm, low plasticity	100% recovery
			12	10YR 5/3 (12'-14')		
			13			
14			19			
			15	CL (15-25% sand, gravel) lean clay w/sand; moist, some gravel, stiff; med. plasticity	25% recovery	
15			12			
			14	10YR 5/3 (14'-14.5')		
16			7			
			44			
			4	SPLIT SPOON IS WET; APPROX DEPTH OF WATER TABLE IS 16'	NO RECOVERY	
			8			
18			10			
			5			
			14			
			17		NO RECOVERY	
20			5			

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

一、
 二、
 三、
 四、
 五、
 六、
 七、
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 十、
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 二十、

A-22

ROY F. WESTON, INC. CLIENT: Army Materials Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2291-11-01				WELL LOG WELL NUMBER: RFW-06SB-5 PAGE 3 OF 3									
DRILLING CONTRACTOR: RER International Inc. DRILLING DATES: 10/9 - 10/10/51 INSPECTOR: Greg Hall BOREHOLE DEPTH: 71.0 FT. BELOW GROUND SURFACE WELL DEPTH: 59.6 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">DRILL RIG</td> <td style="padding: 2px;">Davy Kent</td> </tr> <tr> <td style="padding: 2px;">SAMPLER</td> <td style="padding: 2px;">13/8" split-spoon</td> </tr> <tr> <td style="padding: 2px;">HAMMER WEIGHT</td> <td style="padding: 2px;">140 lb</td> </tr> <tr> <td style="padding: 2px;">LENGTH OF FALL</td> <td style="padding: 2px;">30'</td> </tr> </table>		DRILL RIG	Davy Kent	SAMPLER	13/8" split-spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30'
DRILL RIG	Davy Kent												
SAMPLER	13/8" split-spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30'												
WELL CONSTRUCTION MW17A installed. See well log for well construction details.	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
	50	—	11	DID NOT SAMPLE									
			15	CL (<45% gravel) lean clay; stiff, moist, med. plasticity, 4Y4/1 (50'-50.2')									
			12	SC (<45% gravel) clayey sand & clay; wet, slightly stiff, variegated, Fe-staining (50.2'-52')									
	52	—	11										
				DID NOT SAMPLE									
	55	—	5	CL (<15% sand, gravel) pure clay; stiff, moist, high plasticity, Boston Blue clay, marine 4Y4/1 (55'-55.5')									
			8										
			13										
	57	—	13	SC (<15% sand, gravel) sand w/ marine clay, wet, loose, variegated, Fe-staining (55.5'-57')									
				DID NOT SAMPLE									
	60	—	9	SP (<15% gravel); loose, moist, low plasticity; 4Y4/1 5Y5/2 (60'-60.3')									
			8										
			31										
	62	—	15	CL (<15% sand, gravel) pure clay, moist, stiff, med. plasticity, Boston blue clay, marine, 5Y5/2 (60.3'-60.6')									
				SP (<15% gravel) moist, firm, low plasticity, Fe-stains, variegated (60.6'-62')									
	65	—	6	DID NOT SAMPLE									
			11	SP (<15% gravel); loose, moist, no plasticity, 10YR6/1 (65'-67')									
			16										
	67	—	19										
				DID NOT SAMPLE									
	70	—	19	SP (<15% gravel); wet, loose, no plasticity, 10YR6/2 (70'-70.6')									
	71	—	90	CL (<15% sand) glacial till; stiff, moist, med. plasticity w/ angular rock fragments CL (<15% sand) glacial till; stiff, moist, med. plasticity w/ angular rock fragments, 10YR7/3									
COMMENTS: p. 3. 06SB-5													

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 07SB1

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-12-91

INSPECTOR: Greg Hall

BOREHOLE DEPTH: 6.0 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-0.4 10yr 3/1 Moist, loose silty loam (MC)	
			6	0.4-2.0 Moist, loose, nonplastic	
			21	Sand and Gravel 10yr 8/4. (SP)	
			18		75% recovery
	2		45		
			26	10yr 4/4 Dry, Firm, nonplastic	
			56	silty sand with cobbles.	
			31	(SM)	25% recovery
	4		30		
				10yr 6/2 Dry, nonplastic, loose	
			27	coarse Sand and Gravel.	1 No-Suits
	6		50/4"	(SP)	75% recovery
				Dry, loose, non plastic sand	
			57	and cobbles.	1 No-Suits
	8		50/3		100% recovery
				10yr 5/3 Dry, loose, nonplastic	
			50/4"	(SP) Sand with Gravel.	
	10				100% recovery
				No sample collected due to	
				difficult drilling conditions.	
	12		18	12-12.5 Same as 8-10 (SP)	
			19	12.5-13 Saturated, fine Sand and silt 10yr	
			20	plasticity, Firm (SM)	
	14		22	13-14 10yr 5/2 Moist, Firm, plastic silty clay	100% recovery
			7	(MC) Same as 13-14 Saturated	
			19	Silty Clay	
	16		16		100% recovery
				End of boring 15'.	
	18				
	20				
	22				
	24				

COMMENTS: Unless otherwise indicated field screening results for gamma radiation and VOCs at background.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 08 SB-2

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11/14/91

INSPECTOR: Tim Warr

BOREHOLE DEPTH: 6 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: Mobil Skid Rig

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-8" Concrete Floor.	
				Upper 0.3' 7.5/10, moist, soft non	
				(pt-sw) plastic, coal slag and ash, 20% f.c.	
				Lower 0.2' 10/16, dry, soft, non plastic, f.c.	
				(st-sw) sand, 20% subangular gravel, 5% silt.	
	2	7			100% Recovery
		17			
		37		10/16, dry, soft, non plastic, f.c. sand,	
		27		(sw) 20% subangular gravel, 5% silt.	
	4	35			45% Recovery
		37			
		38		10/16, dry, soft, non plastic, f.c. sand,	
		43		25% subangular gravel, 5% silt.	
	6				50% Recovery
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 6'.

Bottom of fill encountered at 2'.

Mobil Skid rig will not drill deeper at this location.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 085B-3

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11/14/91

INSPECTOR: Tim Warr

BOREHOLE DEPTH: 10 FT. BELOW GROUND SURFACE

WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL

GROUNDWATER ELEVATION: N/A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: Mobil Skid Rig

SAMPLER: 1 3/8" SPLIT SPED

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-10" Concrete floor	
				10' R 3/2, wet, soft, non-plastic	
		8		(sw-Pt) Subangular gravel, 10% silt, 20% coal dust and organics	20% Recovery
	2	3		upper 0.2' 5' R 2.5/1, Coal and Coal dust	
		12		lower 0.3' 7' S 1/4 4/4 dry, soft, non-plastic	
		49		(SM) Silt & sand, 5% fine sand, 1% subangular gravel	25% Recovery
	4	37		upper 0.2' 10' R 6/2 dry, soft, non-plastic	
		23		(SP) sand, 10% m-c sand and gravel, 10% silt	
		27		middle 0.2' 10' R 6/2, f. sand, 5% silt	
		35		lower 1.0' 10' R 6/2, dry, soft, non-plastic, f-c sand, (sw-GW)	100% Recovery
	6	17		10' R 6/2, dry, soft, non-plastic, gravel, sand (sw-GW), 45% subangular gravel, 10% silt	75% Recovery
		41			
		42			
	8	39			
		54			
		46			
		57			
	10	50			
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 10'

Bottom of fill encountered at 5'

Mobil skid rig will not drill deeper at this location

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 09SB-1

PAGE 1 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-12-91

INSPECTOR: Greg Hall

BOREHOLE DEPTH: 24.5 FT. BELOW GROUND SURFACE

WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL

GROUNDWATER ELEVATION: N/A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0				
			2	Dry, loose, nonplastic 5x3/1 sandy loam with some gravel (SP-SM)	50% recovery
			7		
			4		
			3		
	2		6	10y-4/2 Dry loose Sand with little angular gravel and some silt and clay. (SP-SM)	HNU-7 units
			7		
			11	10y-4/4 Moist, loose silt with clay and gravel (ML-CL)	50% recovery
	4		9		
			11		
			10		
			12	10y-4/4 Dry, loose, nonplastic (SC) Sand & Gravel with some clay	HNU-7 units
	6		8		
			16		
			64		
			50/6	10y-4/4 Dry, loose Sand & Gravel with some silt. (SM)	50% recovery
	8		9		
			57		
			50/3		
	10			No sample collected due to difficult drilling conditions, large cobbles.	40% recovery
	12			No sample collected	
	14			No sample collected	
	16			No sample collected	
	18		63	10y-6/2 Dry, loose, nonplastic Sand & Gravel with minor clay & silt. (SW-SM)	100% recovery
			80		
			50/3"		
	20		20	10y-6/4 Moist, firm fine Sand. (SW)	90% recovery
			63		
			50/2"		
	22		26	22-22.2 same as 20-22- (SW)	75% recovery
			28		
			37		
			47		
	24			22.2-24 Dry loose, nonplastic coarse Sand with gravel & cobbles (SW)	

COMMENTS: Unless otherwise indicated, field screening results for gamma radiation and VOCs at background.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 0952.1

PAGE 2 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-12-91

INSPECTOR: Greg Hall

BOREHOLE DEPTH: 34.5 FT. BELOW GROUND SURFACE

WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL

GROUNDWATER ELEVATION: N/A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER FOOT	CLASSIFICATION	NOTES
NO WELL INSTALLED	24		23	Dry, loose, nonplastic Coarse Sand with Gravel. (SW)	
			24		
			28		
			29		
	26		24	Same as 24" to 26" (SW)	50% recovery
			24		
			21		
			25		
	28		19	Same as 24" to 28" (SW)	70% recovery
			22		
			19		4Nu-7 units
			29		
	30		19	Same as 24" to 30" (SW)	50% recovery
			23		
			23		4Nu-4 units
			42		
	32		30	Saturated (SW) Same as 24" to 32"	55% recovery
			17		
			12		4Nu-5 units
			12		
	34		7	Saturated (SW) Same as 24" to 34"	65% recovery
			13		
			18		
			32		
	36			End of boring 36"	75% recovery
	38				
	40				
	42				
	44				
	46				
	48				

COMMENTS: Unless otherwise indicated, field screening results for gamma radiation and VOC's at background.

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-10SS-2 PAGE 1 OF 2									
DRILLING CONTRACTOR: R+R International, Inc. DRILLING DATES: 10-15-91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 28.0 FT. BELOW GROUND SURFACE WELL DEPTH: NA FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL GROUNDWATER ELEVATION: NA FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">DRILL RIG</td> <td>DAVEY KENT</td> </tr> <tr> <td>SAMPLER</td> <td>1 3/8" split-spice</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lbs.</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	DAVEY KENT	SAMPLER	1 3/8" split-spice	HAMMER WEIGHT	140 lbs.	LENGTH OF FALL	30"
DRILL RIG	DAVEY KENT												
SAMPLER	1 3/8" split-spice												
HAMMER WEIGHT	140 lbs.												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
	0			0-0.25' Asphalt									
	1		28	10yr 6/6 Dry, loose, nonplastic med									
			33	(SP) Sand with 10% rounded Gravel	80% recovery								
	2		41	(SP) 2-2.5 10yr 6/4 Dry, loose, nonplastic									
			37	medium Sand									
	3		33	2.5-4 10yr 3/2 Moist, soft, nonplastic	90% recovery								
			50/3"	(Sm) Fine Sand and Silt									
	4		22	10yr 6/6 Dry, loose, nonplastic, poorly									
			40	sorted F-M-C Sand with									
	5		59	10% rounded Gravel	80% recovery								
	6		112	(SP) 10yr 6/6 Dry, loose, nonplastic									
			64	poorly sorted F-M-C Sand									
			70/5"	with 10% rounded Gravel.	100% recovery								
	8		28	10yr 6/4 Dry, loose, nonplastic									
			46	(SP) poorly sorted F-M-C Sand	100% recovery								
			55	with 20% rounded Gravel.									
	10		46	10yr 6/6 Moist, loose, nonplastic									
			23	uniform med Sand	100% recovery								
	11		52	(SP) 10yr 5/6 Moist, firm, nonplastic									
			40	Fine to med Sand with 20% r. gravel									
	12		21	(SP) 12-14 10yr 5/6 Moist, loose, nonplastic									
			27	poorly sorted F-M-C Sand	50% recovery								
	13		23	(SP) with 20% rounded Gravel.									
	14		15	(SP) 10yr 5/4 Moist, soft, nonplastic									
			22	uniform med Sand.	80% recovery								
	15		29										
	16		31										
			26	10yr 6/4 Moist, loose, nonplastic									
			26	(SP) uniform med Sand with	90% recovery								
			31	10% rounded Gravel									
	18		43	18-19 10yr 6/4 Moist, loose, nonplastic	100% recovery								
			26	uniform med Sand.									
	19		27	(SP) 19-20 10yr 3/2 Fine to med Sand	100% recovery								
			22	with 20% rounded Gravel									
	20		43	(SP) 10yr 2/1 Saturated misc	HNu-5 units								
			13	Sand	100% recovery								
	21		22		Free Product								
	22		19										
			27	25-27 Saturated misc	HNu-7 units								
			25	Sand	90% recovery								
	23		26		Free Product								
	24		23										
			17	10yr 7/1 Firm, saturated, low	HNu-1 unit								
	25		28	(SP) plasticity Fine Sand	50% recovery								
			30										
			28										
COMMENTS: Free petroleum product encountered in soil from 20 to 24 Feet. Unless otherwise indicated field screening results indicate no gamma radiation or VOCs detected.													

FIGURE A3-2 BOREHOLE/WELL LOG SHEET



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 1158-1

PAGE / OF 21

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11-12-91

INSPECTOR: RICHARD EICHMANN

BOREHOLE DEPTH: 26 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-1': CONCRETE FLOOR	
				1-2': 7.5' 3/2 Dry, SOFT, nonPLASTIC	
		16		FINE SAND and SILT, trace submy	60% recovery
		14		(SM) gravel. 10% organic in upper 6".	50% off
	2	11			
		15			
		44		no RECOVERY	
	4	50/1			no recovery
		20		10yr 6/4 Dry, SOFT, nonPLASTIC	
		28		FINE AND MED. SAND, 10% COARSE	
		28		(SW) SAND, 15% submy gravel.	60% recovery
	6	30			
		38		10yr 6/4 Dry, SOFT, nonPLASTIC	
		44		FINE AND MED. SAND, trace COARSE	
		50/1		(SP-SW) sand, 15% submy gravel.	25% recovery
	8	30		upper .5' SOFT, Dry, nonPLASTIC - SAME AS ABOVE.	
		36		lower .5' 10yr 7/3 STIFF, Dry, nonPLASTIC FINE	
		33		SAND, 1/16-1/4" COARS bedding.	
		30		(SW-SP)	70% recovery
	10	30		upper .3' SAME AS lower .5' of ABOVE	
		36		lower 1' 10yr 6/3 FINE & med SAND, 10% COARSE	
		52		SAND, 10% gravel (submy-ang).	
		26		(SW) STIFF, Dry, nonPLASTIC	65% recovery
	12	20		upper 1.1' 10yr 7/3 poorly sorted FINE sand, trace	
		26		(SP) MED-COARSE sand.	
		50		lower .4' 10yr 7/3 poorly sorted sand and submy-	
		45		(SP) ang gravel. Dry, SOFT nonPLASTIC	75% recovery
	14	24		10yr 6/2 SOFT-STIFF, Dry, nonPLASTIC	
		31		Poorly sorted sand with 40%	
		27		(SW) submy. gravel.	60% recovery
	16	24			
		21		10yr 6/2 Gravel w/ 40% poorly sorted	
		16		sand.	
		15		(SW) SOFT, Dry, non PLASTIC	50% recovery
	18	24			
		28		2.5yr 4/4 Dry, STIFF nonPLASTIC	
		40		Poorly sorted sand and	
		44		(SW) gravel	60% recovery
	20	50			
		28		2.5yr 4/4 Dry, STIFF, nonPLASTIC	
		40		Poorly sorted sand and	
		44		(SW) gravel	50% off
	22	50			60% recovery
		46		2.5yr 4/4 wet, STIFF, nonPLASTIC	
		31		poorly sorted sand and	
		49		(SW) gravel	
	24	26			40% recovery
		7		2.5yr 4/4 wet, STIFF, nonPLASTIC	
		13		Poorly sorted sand and	
		14		(SW) gravel.	75% recovery
	26	9			

COMMENTS:

Boring terminated @ 26'

All H₂O & R₂O readings @ background levels

NO FILL ENCOUNTERED

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-11SB-2 PAGE 1 OF 1 GRSB-14									
DRILLING CONTRACTOR: R & R International, Inc DRILLING DATES: 10-14-91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 26. FT. BELOW GROUND SURFACE WELL DEPTH: N/A. FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL GROUNDWATER ELEVATION: N/A FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRILL RIG</td> <td>Davey Kent</td> </tr> <tr> <td>SAMPLER</td> <td>13/8" Split-Spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	Davey Kent	SAMPLER	13/8" Split-Spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILL RIG	Davey Kent												
SAMPLER	13/8" Split-Spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
No well installed	0			Ground Surface									
				0-0.5 Asphalt Layer									
		S#1	20	(SP) munsell 10yr 2/2 Dry Coarse	70% recovery								
			28	Sand with 20% rounded Gravel									
			20										
		2											
		S#2	12	(SP) 10yr 3/3 Dry Coarse Sand	20% recovery								
			18	sm Dry soft fine to med Sand									
			26	with 20% angular Gravel. 10yr 3/3									
		4											
		S#3	28	(SP) Coarse Sand with 20%	90% recovery								
			32	rounded Gravel. 10yr 5/6									
			30										
		6											
		S#4	50/34	10yr 7/2 Dry loose med to	100% recovery								
				(SP) Coarse Sand with 20%									
				angular Gravel.									
		8											
		S#5	60/4"	10yr 3/3 Moist, Firm, low	100% recovery								
				plasticity fine Sand and									
				(SM) silt with 20% Coarse Sand									
		10		Subangular Gravel.									
		S#6	60/0"	No recovery core-barrel	No recovery								
				refusal.									
		13											
	S#7	100/10"	No recovery core-barrel	No recovery									
			refusal.										
	15												
	S#8	9	10yr 6/6 Dry F-m Sand	100% recovery									
		39	(SP-SM) Dry, soft C. Sand with										
		26	10% rounded Gravel and 10% F. Sand										
	S#9	24	10yr 6/6 Dry soft, C. Sand	100% recovery									
		38	(SP-SM) with 10% rounded Gravel										
		100/15"	and 10% F. Sand										
	18												
	S#10	51	10yr 6/3 Dry soft F. to m	100% recovery									
		35	(SP-SM) Sand with 30% rounded										
		33	Gravel										
	20												
	S#11	30	10yr 6/4 Dry soft m to C Sand	100% recovery									
		32	SP-SM with 40% rounded Gravel										
		33	Sharp Contact										
	23												
	S#12	21	10yr 6/4 Moist Firm	80% recovery									
		27	(ML) low plasticity F Sand										
		24	and silt										
	25												
	S#13	21	10yr 6/6 Firm saturated	End of Boring 25'									
		20	graded F Sand with 20%										
		20	M. Sand										

COMMENTS: All HNU and RAD readings were at background. Boring terminated at 25'.

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC. CLIENT: ARMY MATERIALS TECHNOLOGY LABORATORY LOCATION: WATERTOWN, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-11SB3 PAGE 1 OF 2											
DRILLING CONTRACTOR: RTR International, Inc. DRILLING DATES: 10-14-91 INSPECTOR: STEPHEN LAWLOR BOREHOLE DEPTH: 34.0 FT. BELOW GROUND SURFACE WELL DEPTH: NA FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL GROUNDWATER ELEVATION: NA FT. AMSL				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">DRILLING EQUIPMENT</th> </tr> <tr> <td>DRILL RIG</td> <td>DAVEY KENT</td> </tr> <tr> <td>SAMPLER</td> <td>1 3/8" split-spacer</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILLING EQUIPMENT		DRILL RIG	DAVEY KENT	SAMPLER	1 3/8" split-spacer	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILLING EQUIPMENT															
DRILL RIG	DAVEY KENT														
SAMPLER	1 3/8" split-spacer														
HAMMER WEIGHT	140 lb														
LENGTH OF FALL	30"														
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES										
No well installed	0			Ground Surface											
	1	13		(ML) 10yr 3/4 Soft Silt with 20% C Sand	90% recovery										
	2	23		(SP) 10yr 5/8 Dry C. and m. Sand with 20% rounded Gravel											
	3	27		(SP) 10yr 6/2 Dry, soft F. to C. Sand with 20% rounded Gravel	100% recovery										
	4	30		(SP) 10yr 6/2 Dry, soft, F to C. Sand with 30% rounded pebbles	90% recovery										
	5	37		No Recovery	No recovery										
	6	52/1		(SP) 10yr 5/3 Soft, Graded Fine to coarse Sand with rounded Gravel, Dry.	90% recovery										
	7	43		(SP) 10yr 6/4 Moist, loose M. to C. Sand.	90% recovery										
	8	57		(SP-SM) 10yr 6/4 Moist, soft m to C Sand with 10% F. Sand and 10% rounded Gravel.	100% recovery										
	9	80		(SP) 10yr 6/2 Dry, Firm, F. to m. Sand with 30% rounded Gravel.	90% recovery										
	10	82		(SW) 10yr 7/2 Dry, soft F. Sand with 20% med Sand	100% recovery										
	11	50/24		(SW) 10yr 6/6 Moist, soft F-m-c Sand (graded).	100% recovery										
	12	12		(ML) 10yr 7/2 Dry, soft Silt w 10% F. Sand and 10% round Gravel	90% recovery										
	13	13		(SW) 10yr 5/4 Dry C. Sand w 10% F. Sand											
	14	17													
	15	20													
	16	23													
	17	27													
	18	30													
	19	33													
	20	36													
	21	39													
	22	42													
	23	45													
	24	48													
	25	51													

COMMENTS: No volatiles detected using HNU for field screening.
 All RAD Field screening results were at background.

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-15B-4 PAGE 1 OF 3									
DRILLING CONTRACTOR: R+E International, Inc. DRILLING DATES: 10-15-91 INSPECTOR: Stephen Lawler BOREHOLE DEPTH: 70.0 FT. BELOW GROUND SURFACE WELL DEPTH: 67.1 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRILL RIG</td> <td>DAVEY KENT</td> </tr> <tr> <td>SAMPLER</td> <td>1 3/8" split spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lbs.</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	DAVEY KENT	SAMPLER	1 3/8" split spoon	HAMMER WEIGHT	140 lbs.	LENGTH OF FALL	30"
DRILL RIG	DAVEY KENT												
SAMPLER	1 3/8" split spoon												
HAMMER WEIGHT	140 lbs.												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
mw 20 installed see well log for well construction details.	0			0-0.5 10yr 3/2 Moist, soft, m plasticity Silt with 10% f. sand	70% recovery								
			4	0.5-2.0 10yr 3/1 Moist, low (SW-SM) plasticity, firm F-m sand with 10% Gravel and 10% silt									
			12										
			10										
			19										
			10	10yr 5/1 Dry, loose, non plastic (SW) M to C Sand with 10% rounded Gravel to Subangular Gravel	25% recovery								
			8										
			6										
			5										
			20	10yr 3/1 Moist, loose, moderate (SM) plasticity F to M Sand with 20% Silt,	75% recovery								
			7										
			5										
			3										
			10	6-8.3 12yr 3/1 Moist, loose, m plasticity Fine to med Sand with 20% Silt	30% recovery								
			18										
			32	6.3-8 10yr 6/6 Dry, loose, non plastic (SN) F-m-L Sand with 20% Gravel									
			37	10yr 5/6 Moist, non plastic soft (SW) M to C Sand with 20% sub-angular gravel	90% recovery								
			22										
			40										
			44										
			57	10yr 7/4 Moist non plastic (SW) silt med to coarse Sand with 20% rounded Gravel	100% recovery 90%								
			19										
			21										
			25										
			13	10yr 6/3 Moist non plastic, soft (SP) M to C uniform Sand	70% recovery								
			17										
		18											
		16											
		10	(SP) 10yr 6/3 Moist, Firm, non-plastic, uniform, M to C Sand	100% recovery									
		14											
		19											
		20											
		40	(SP) 10yr 6/4 Moist low plasticity F-m-L Sand with 20% sub-angular Gravel	100% recovery									
		47											
		24											
		23											
		16	19-19.5 10yr 5/6 Moist, soft, non-plastic, uniform med Sand (SP)	70% recovery									
		23											
		30	19.5-20 10yr 6/4 Moist, loose, non-plastic M to C Sand, 10% ang Gravel (SN)										
		19	10yr 6/6 Moist, Firm, non plastic (SW) M to C Sand with 20% sub-angular Gravel	85% recovery									
		23											
		37											
		40											
		46											
		24	10yr 5/6 Moist, Firm, non plastic (SW) M to C Sand with 5% rounded Gravel	70% recovery									
		17											
		15											
		9	10yr 5/4 Moist, Firm, non-plastic, uniform, M to C Sand (SP)	80% recovery									
		4											
		16											
		26											
COMMENTS: 115B4 Drilled at MW-20 Field screening results indicate no detectable gamma radiation or VOC in soil samples.													

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-11534 PAGE 2 OF 3									
DRILLING CONTRACTOR: R+R International Inc. DRILLING DATES: 10-15-91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 70.0 FT. BELOW GROUND SURFACE WELL DEPTH: 67.1 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRILL RIG</td> <td>DAVEY KENT</td> </tr> <tr> <td>SAMPLER</td> <td>2 3/8" Split Spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lbs</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	DAVEY KENT	SAMPLER	2 3/8" Split Spoon	HAMMER WEIGHT	140 lbs	LENGTH OF FALL	30"
DRILL RIG	DAVEY KENT												
SAMPLER	2 3/8" Split Spoon												
HAMMER WEIGHT	140 lbs												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
MW-20 installed See well log for well construction details.	26		16 26 26 32 34 38	10yr 7/2 Moist, soft, nonplastic M to C Sand with 10% rounded Gravel (SW)	70% recovery								
	28		26 29 39 38	10yr 5/4 Dry, loose, nonplastic M to C Sand with 10% sub-angular Gravel (SW)	100% recovery								
	30		23 25 36 42 44 22 25	10yr 5/4 Dry, Firm, nonplastic (SW) M to C Sand with 20% sub-angular Gravel	90% recovery								
	31		26 14 13 15 30	10yr 6/4 Moist, soft, nonplastic M to C Sand.	80% recovery								
	32			10yr 5/4 Saturated firm, non-plastic M to C Sand (SW)	100% recovery								
	34												
	36												
	40												
	41		42 64 43 39	40-40.8 10yr 4/4 Saturated loose poorly sorted, nonplastic M to C Sand and Gravel (SW)	100% recovery								
	42			40.8-42 10yr 4/3 Saturated, loose, non-plastic, poorly sorted M to C Sand (SW)									
	45												
	46		11 17 19 22	10yr 4/2 Saturated, nonplastic (SW) M to C Sand	100% recovery								
	47												
	49												
	50		15 10										

COMMENTS: Begin using 5-foot sample interval at 34 feet.
 11534 Drilled at MW-20
 Field screening results indicate no detectable gamma or VOC's.

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown MA WORK ORDER NUMBER: 2281-11-01						WELL LOG WELL NUMBER: RFW-1153-4 PAGE 3 OF 3									
DRILLING CONTRACTOR: RTI International Inc. DRILLING DATES: 10-15-91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 70.0 FT. BELOW GROUND SURFACE WELL DEPTH: 67.1 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL						DRILLING EQUIPMENT <table border="1"> <tr> <td>DRILL RIG</td> <td>DAVEY KENT</td> </tr> <tr> <td>SAMPLER</td> <td>1 3/8" split spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lbs.</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	DAVEY KENT	SAMPLER	1 3/8" split spoon	HAMMER WEIGHT	140 lbs.	LENGTH OF FALL	30"
DRILL RIG	DAVEY KENT														
SAMPLER	1 3/8" split spoon														
HAMMER WEIGHT	140 lbs.														
LENGTH OF FALL	30"														
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES										
MW 20 installed See well log for well construction details.	50		15	10% - 5/4 Saturated, non plastic (SW) F to M Sand	100% recovery										
	52		10 13 20												
	55		37 50/34	Sand running into auger prevents sample from being collected	100% recovery										
				Sharp Contact (Till)											
	60		30 35 46 42	60-61.8 Med sand flowing into auger 61.8-62' Saturated fine m, plasticity; poorly sorted silt f. Sand and silt with 20% m sand and 5% angular Gravel (Till). Based on resistance during drilling, driller believes till first encountered at 57 feet. (SM)	100% recovery										
	65														
	70			End of boring at 70': Unable to obtain split-spoon sample due to sand flowing up into auger-S.											
	75														
COMMENTS: 1153-4 Drilled at MW-20 Field screening results indicate no detectable gamma radiation or VOC's.															

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 1253-1

PAGE 1 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-17-91

INSPECTOR: Stephen Lawlor

BOREHOLE DEPTH: 25.0 FT. BELOW GROUND SURFACE

WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL

GROUNDWATER ELEVATION: N/A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0'-0.3 Asphalt Pavement	
				0.35-0.75 10yr 6/3 Moist, soft, i. plasticity	
		12		Fine to medium Sand	100% recovery
		15		0.75-2.0 7yr 4/2 Moist nonplastic, soft	
	2	94		C. Sand with 10% F Sand and 20% Gravel	
		4		7.5yr 3/4 Moist, firm, m plasticity	70% recovery
		10		(ML) Silt and F. Sand with 10% C.	
		10		Sand and Fl. Ash	
	4	8		10yr 5/2 Moist soft, m plasticity	70% recovery
		5		(SM) F to M Sand and Silt	
		23			
	6	64		6'-7' Moist nonplastic, soft + m to C	100% recovery
		60/2'		Sand with 30% subangular Gravel	
				7'-8' No sample. Spoon refusal.	
	8	54		10yr 6/4 Moist, soft, nonplastic	100% recovery
		63		m to C Sand with 10% sub.	
		69		angular Gravel	
	10	39		10yr 6/6 Moist, soft, i. plasticity	80% recovery
		59		(SW) F-M to C Sand with 20% subangular	
		50		Gravel	
	12	38			
		32		10yr 6/4	50% recovery
		36		(SN) Same as 10'-12'	
		51			
	14	33			
		21		10yr 6/4 Moist, nonplastic, firm	100% recovery
		27		(SW-SM) m to C Sand with 10% F Sand	
		34		and 10% rounded Gravel	
	16	25			
		42		10yr 6/2	100% recovery
		36		(SW-SM) Same as 14' to 16'	
		35			
	18	36			
		17		10yr 6/2 Moist, firm, nonplastic	100% recovery
		24		(SW) uniform fine Sand	
	20	29			
		31			
		15		10yr 6/2	100% recovery
		6		(SW) Same as 18'-20'	
		22			
	22	21			
		12		10yr 6/2	100% recovery
		19		(SW) Same as 18'-22'	
		15			
	24	16			
		11		10yr 6/2	100% recovery
		20		(SW) Same as 18'-24'	
		20			
	26	16			

COMMENTS: Boring terminated at 25.0 Feet
Field screening results indicate no gamma radiation or HOCs detected.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 1253-1

PAGE 2 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-17-91

INSPECTOR: Stephen Lawlor

BOREHOLE DEPTH: 29.0 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAYEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	24		11	10 yr G/2	
			20	(SW) Same as 15-24"	100% recovery
			20		
			16		
	26		13	10 yr S/2 Saturated, firm, and	
			19	plasticity uniform F. Sand	100% recovery
			31		
	28		23	(SW)	
	30				
	32				
	34				
	36				
	38				
	40				
	42				
	44				
	46				
	48				

COMMENTS: Boring terminated at 29.0 Feet
Field screening results indicate no gamma radiation or VOCs detected.

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-12SBZ PAGE 1 OF 2									
DRILLING CONTRACTOR: R & R International, Inc DRILLING DATES: 10-17-91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 30. FT. BELOW GROUND SURFACE WELL DEPTH: NA. FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL GROUNDWATER ELEVATION: NA FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRILL RIG</td> <td>Davey Kent</td> </tr> <tr> <td>SAMPLER</td> <td>1 3/8" split spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	Davey Kent	SAMPLER	1 3/8" split spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILL RIG	Davey Kent												
SAMPLER	1 3/8" split spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
	0		9	0-0.5 10y-3/1 F Sandy loam to ssil									
			32	0.5-2.0 No sample recovery.	25% recovery								
			39										
	2		4										
			7	10y-3/1 Moist, low plasticity;									
			9	(SW) soft, F to M Sand	25% recovery								
			7										
	4		5										
			7	10y-3/1 Saturated, low plasticity, loose									
	5		7	(SM) F. Sand and silt with 20% C. Sand and 10% rounded Gravel	50% recovery								
			5	fly ash mixed in with soil.									
	6		3	(SM) 10y-3/1 Saturated, loose, low plasticity F. Sand and silt	25% recovery								
			2	with 30% C. Sand and 10% rounded Gravel									
			3										
	8		4										
			10	8.9-9.7 10y-3/2 Saturated, low plasticity									
			10	(SW) loose F-M-C Sand	70% recovery								
			27	9.7-10.2 10y-5/4 Moist soft, nonplastic									
	10		30	(SW) C. Sand with 10% med Sand									
			28	10y-6/4 Moist soft, nonplastic									
			21	(SW) C. Sand with 10% M. Sand.	70% recovery								
			23										
	12		31										
			15	10y-6/3 Moist, firm, nonplastic									
			41	(SW) M to C Sand with 10% sub-angular Gravel.	90% recovery								
			36										
	14		22										
			20	10y-6/4 Moist, loose, nonplastic									
	15		40	(SW-SM) M to C Sand with 10% F Sand and 10% subangular Gravel	90% recovery								
			32										
	16		26	10y-6/3 Moist, loose nonplastic									
			26	F-M-C Sand	40% recovery								
			53										
			33										
	18		24										
			13	18-18.6 Saturated 10y-5/3 low									
			15	(SW) plasticity, firm, F-M-C Sand.	90% recovery								
			20	18.6-20 10y-6/4 Moist nonplastic									
	20		7	(SW) subangular Gravel									
			14										
			20	10y-5/3 Same as 18.6'-20'	60% recovery								
			20	(SW)									
	22		16	10y-5/3									
			22	Same as 18.6'-22'	75%								
			24	(SW)									
	24		40										
			41	10y-6/3									
	25		37	(SW) Same as 18.6'-22'	70%								
			36										
			37										
COMMENTS:													

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-12582 PAGE 2 OF 2									
DRILLING CONTRACTOR: R & R International, Inc DRILLING DATES: 10-17-91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 36 FT. BELOW GROUND SURFACE WELL DEPTH: NA FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL GROUNDWATER ELEVATION: NA FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">DRILL RIG</td> <td>Davey Kent</td> </tr> <tr> <td>SAMPLER</td> <td>1 3/8" split spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	Davey Kent	SAMPLER	1 3/8" split spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILL RIG	Davey Kent												
SAMPLER	1 3/8" split spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
	26		23	26-27.7' 10y-5/4 Moist, low plasticity, silt (SP) fine sand	80% recovery								
			20	27.7-28' 10y-5/4 Same as 26-27.7' (SP)									
	29		14	5y 4/3 Saturated, high plasticity firm, uniform silt with 10% fine sand (MH)									
	30		8		100% recovery								
			10	Visible petroleum contamination from 28.8' to 29.2'	HNU-10 units								
				End of Boring 30'									
COMMENTS: Unless otherwise noted, field-screening results indicate no detectable gamma radiation or VOC's.													

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 12-SB-3

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-23-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 24 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG	DAVEY KENT
SAMPLER	1 3/8" SPLIT SPOON
HAMMER WEIGHT	140 lb
LENGTH OF FALL	30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-0.2 Asphalt	
			19	10y-3/1 Soft, non plastic, moist	
			19	fine to med sand with 10% silt and 10% angular gravel	75% recovery
	2		21	10y-4/4 Moist, non plastic, soft	
			19	(SW) F to M Sand with 5% angular gravel.	50% recovery
	4		20		
			9	4.0-4.7 10y-3/2 Moist, soft, non plastic F to M Sand, 5% angular gravel	
			21	5.0-5.7 10y-7/6 F to M Sand, trace silt	
	6		36	(SW) 20% non angular gravel.	90% recovery
			59	10y-6/6 Moist, soft, non plastic F-(SW-SM) m-c Sand with 10% silt and 25% angular Gravel	70% recovery
	8		60		
			69		
			34		
	10		23	10y-6/3 Saturated soft, non plastic fine-m-c Sand, 10% silt	
			36	(SW-SM)	75% recovery
			40		
	12		51	10y-6/6 Moist, non plastic, soft, F-m-c Sand with 10% silt, 5% sub-angular gravel	70% recovery
			36	(SW-SM) angular Gravel	
			57		
			57		
	14		54	10y-7/6 Moist, non plastic, soft F-m-(SW-SM) C Sand with 10% silt and 25% angular Gravel	55% recovery
			50		
			54		
			38		
			44		
	16		35	10y-5/8 Moist non plastic, soft, F-m-(SW-SM) C Sand with 10% silt and 10% subangular Gravel	75% recovery
			32		
			25		
	18		18	16-17.6 10y-6/5 Same as 14'-16' (SW-SM)	
			27	7.5-18 10y-7/6 Saturated, low plasticity (ML) soft silt with 20% F. Sand and 5% clay	60% recovery
			21		
	20		9	10y-6/6 Moist, m plasticity, soft (MH) silt with 10% Fine Sand and 20% Clay	90% recovery
			10		
			18		
			12		
	22		10	10y-5/4 Saturated, high plasticity soft silt and clay with 10% Fine Sand (MH)	90% recovery
			14		
			14		
	24		5	Same as 20'-22' (MH)	90% recovery
			13		
			14		
			14		
				24 Feet End of Boring	

COMMENTS: Boring terminated at 24 feet

Field screening results indicate no gamma radiation or VOCs in soil.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: ZZ81-11-01

WELL LOG

WELL NUMBER: 1358-1 / GRSB-18

PAGE / OF 5

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-26-91

INSPECTOR: STEVE LAWUT

BOREHOLE DEPTH: 108' FT. BELOW GROUND SURFACE

WELL DEPTH: 98.4 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW-19 A installed See well log for well construction details.	0		2	10yr 3/2 MOIST, FIRM, LOW PLASTICITY	
			3	FINE SAND and SILT (TOPOIL)	
			2		
			3	(SM-PT)	
	2		3	10yr 6/6 SOFT, moist, nonplastic	45% recovery
			4	med to coarse sand, 10% subangular gravel.	
			17	(SP)	
			19		50% recovery
	4		9	10yr 6/4 dry, soft, nonplastic	
			28	med to coarse sand, 20% subangular gravel.	
			34	(SP)	
			40		70% recovery
	6		38	10yr 6/4 FIRM, moist, nonplastic	
			53	MEDIUM to COARSE SAND, 20% subangular gravel.	
			49	(SP)	
			64	med to coarse sand, 20% subangular gravel.	80% recovery
	8		14	10yr 6/4 FIRM, moist, nonplastic	
			35	FINE - COARSE sand, 10% subangular gravel.	
			46	(SW)	
			54		90% recovery
	10		17	10yr 6/4 SOFT, nonplastic, clay	
			29	medium to coarse sand, 20% subangular gravel.	
			27	(SP)	
			38		85% recovery
	12		23	10yr 6/5 LOOSE, nonplastic, dry	
			25	COARSE SAND and gravel, 20% med sand	
			13	(SP)	
			18		90% recovery
	14		8	10yr 6/3 SOFT, moist, nonplastic	
			11	medium to coarse sand	
			17	(SP)	
			31		80% recovery
	16		10	10yr 6/3 SOFT, moist, nonplastic	
			23	med - coarse sand, 10% rounded gravel.	
			37	(SP)	
			48		75% recovery
	18		17	10yr 6/6 LOOSE, moist nonplastic	
			24	med (20%) - coarse sand and gravel (subangular)	
			17	(SP)	
			27		100% recovery
	20		11	10yr 6/4 moist, nonplastic, soft	
			13	(SP)	
			37	medium sand, 20% coarse sand.	
			44		80% recovery
	22		15	10yr 6/3 SOFT, moist, nonplastic	
			18	medium to coarse sand, 10% subangular gravel	
			27	(SP)	
			19		90% recovery
	24				

COMMENTS:

0-34' 10-26-91 Drill with 4" Augers Davey Kent rig
 34-55' 11-9-91 Drill with 10 1/2 augers CMIE rig
 55-108' 11-24-11-25-91 Drill with Barber air-rotary rig.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 13SB-1
GR5B-18

PAGE 2 OF 5

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-26-91

INSPECTOR: STEVE LAWLER

BOREHOLE DEPTH: 108' FT. BELOW GROUND SURFACE

WELL DEPTH: 98.4' FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW19A installed See well log for well construction details.	24		12	10yr 6/4 SOFT, moist, nonplastic	
			13	MEDIUM SAND, 10% COARSE SAND.	
			18	(SP)	
	26		15	Upper 6': SOFT, moist, nonplastic, 10yr 5/3	75% recovery
			37	(SP) MED-COARSE SAND	
			35	Lower 1': 10yr 5/3 Firm, dry, nonplastic	100% recovery
	28		38	(SW) FINE-COARSE SAND, 10% subangular gravel	
			48	10yr 5/3 Firm, dry, nonplastic	
			50	MED-COARSE SAND, 10% subangular gravel.	
			44	(SP)	
	30		55		60% recovery
			16	10yr 5/4 Firm, saturated, nonplastic	
			14	FINE-MEDIUM-COARSE SAND, 20% subangular gravel.	
			14	(SW)	
	32		12		60% recovery
			15	10yr 5/3 Firm, saturated, high plasticity	
			15	FINE SAND, SILT, CLAY	
			22	(ML-CL)	
	34		22		95% recovery
	35		23	10yr 4/2 Saturated, firm low plasticity	
	36		16	Fine Sand with 20% silt	20% recovery
			59	and 20% angular Gravel, sorted.	
	37		25	(SM)	
	38				
	40				
			10	10yr 4/4 Saturated nonplastic, firm	
			18	uniform F to M Sand.	
			20	(SW)	
	42		26		100% recovery
	44				
	46				
	48				

COMMENTS:

All HNU and RAD readings at background levels
NO FILL DEFINED

ROY F. WESTON, INC. CLIENT: Army Materials Testing Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-359-1-GR53-18 PAGE 3 OF 5									
DRILLING CONTRACTOR: R & R International, Inc. DRILLING DATES: 11-9-91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 108. FT. BELOW GROUND SURFACE WELL DEPTH: 98.5 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">DRILL RIG</td> <td style="padding: 2px;">Dawey Kent</td> </tr> <tr> <td style="padding: 2px;">SAMPLER</td> <td style="padding: 2px;">1/2" split spoon</td> </tr> <tr> <td style="padding: 2px;">HAMMER WEIGHT</td> <td style="padding: 2px;">140 lb</td> </tr> <tr> <td style="padding: 2px;">LENGTH OF FALL</td> <td style="padding: 2px;">30 "</td> </tr> </table>		DRILL RIG	Dawey Kent	SAMPLER	1/2" split spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30 "
DRILL RIG	Dawey Kent												
SAMPLER	1/2" split spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30 "												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
MW 19A installed See well log for well construction details.	50		20	10yr 5/4 Saturated soft, nonplastic (SW) fine to medium Sand.	100% recovery								
	51		30										
	52		34										
	53		25										
	54		20	10yr 4/3 Saturated, Firm, low plasticity, poorly sorted F-m Sand, silt and 20% angular gravel (fill)	20% recovery								
	55		32										
	56		34										
	57												
	58												
	59												
	60												
	61												
	62		16	10yr 5/8 Saturated Firm, non plastic, poorly sorted silt, F-m-c Sand with 50% angular Gravel (fill).	50% recovery								
	63		19										
	64		17										
	65												
	66												
	67												
	68												
	69												
70		25	10yr 5/3 Saturated, non plastic poorly sorted, Firm silt Fine to Coarse Sand and 40% angular gravel (fill).	100% recovery									
71		48											
72		76											
73		59											
74													
75													
76													
77													
78													
79													
COMMENTS: All H ₂ O ₂ and gamma radiation at background levels													

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ROY F. WESTON, INC. CLIENT: Army Materials Testing Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-GR53-18 PAGE 5 OF 5									
DRILLING CONTRACTOR: R & R International, Inc. DRILLING DATES: 11/24 - 11/25/91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 106.4 FT. BELOW GROUND SURFACE WELL DEPTH: 98.4 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">DRILL RIG</td> <td style="padding: 2px;">Dacey Kent</td> </tr> <tr> <td style="padding: 2px;">SAMPLER</td> <td style="padding: 2px;">3/4" split spoon</td> </tr> <tr> <td style="padding: 2px;">HAMMER WEIGHT</td> <td style="padding: 2px;">200 lb</td> </tr> <tr> <td style="padding: 2px;">LENGTH OF FALL</td> <td style="padding: 2px;">8"</td> </tr> </table>		DRILL RIG	Dacey Kent	SAMPLER	3/4" split spoon	HAMMER WEIGHT	200 lb	LENGTH OF FALL	8"
DRILL RIG	Dacey Kent												
SAMPLER	3/4" split spoon												
HAMMER WEIGHT	200 lb												
LENGTH OF FALL	8"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION		NOTES							
MW 19A installed See well log for well construction details.	100			10 x 5 1/1 Weathered Rock									
		106			110 Feet End of Boring								
	110												

COMMENTS: All VOC and gamma radiation at background levels.

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-13582 PAGE 1 OF 1									
DRILLING CONTRACTOR: R & R International, Inc DRILLING DATES: 10-16-91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 26 FT. BELOW GROUND SURFACE WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL GROUNDWATER ELEVATION: N/A FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">DRILL RIG</td> <td>Dayey Kent</td> </tr> <tr> <td>SAMPLER</td> <td>1 3/8" Split Spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	Dayey Kent	SAMPLER	1 3/8" Split Spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILL RIG	Dayey Kent												
SAMPLER	1 3/8" Split Spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
	0			0-0.5' 10y-3/2 Sand-Silt topsoil									
			3	0.5-2.0 10y-5/3 Moist, low plasticity	75% recovery								
			10	loose C. Sand with 15% Silt and									
			25	(SW) 20% subangular Gravel.									
	2		17										
			25	10y-7/3 Dry, loose, nonplastic M to	60% recovery								
			36	(SW) C Sand with 30% subangular									
			37	to rounded Gravel									
	4		34										
			50	4-4.5' 10y-3/4 Moist, low plasticity, soft	100% recovery								
			27	(SW) F. Sand with Silt, 20% rounded gravel									
	5		27	10y-6/4 Dry, nonplastic, loose M									
			27	(SW) to C Sand with 30% rounded Gravel									
	6		42	10y-6/4 Moist, nonplastic, loose									
			50/5'	(SW) M to C Sand with 20% subangular Gravel	100% recovery H.Nu-1.0 unit*								
	8		50/0'	No Sample; spoon refusal	NA								
	10												
			26	10y-5/6 Moist, nonplastic	80% recovery								
			16	(SW) Firm, F-m-c sand with									
			13	20% subangular Gravel									
	12		20										
			23	10y-6/6 Moist, nonplastic, soft	80% recovery								
			13	(SW) M to C Sand	H.Nu-1.0 unit*								
			16										
	14		20										
			36	10y-4/4 Moist, loose, nonplastic	50% recovery								
			33	(SW) M to C Sand	H.Nu-1.0 unit*								
	15		19										
			24	10y-6/3 Moist, soft, nonplastic	70% recovery								
			17	(SW) F-m-c Sand with 5%	H.Nu-1.0 unit*								
			24	subangular gravel									
	18		28										
			12	10y-6/4 Moist, soft, low plasticity	70% recovery								
			19	(SW) F-m-c Sand with 5%	H.Nu-1.0 unit*								
			17	subangular Gravel									
	20		24										
				20-20.5' Drilling error, no sample	NA								
			30										
			53	20.5-22' 10y-6/4 Moist, soft, low	100% recovery								
			39	(SW) plasticity F-m-c Sand with 5%	H.Nu-1.2 unit*								
	22			subangular Gravel									
			36	22-23.5' 10y-6/4 Moist, soft, L plastic	80% recovery								
			30	(SW) F-m-c Sand	H.Nu-1.4 unit*								
			26	23.5-24' 10y-5/3 Saturated, low plastic									
	24		22	(SW) fine sand with 10% silt; firm									
			12										
	25		15	10y-5/3 Saturated, firm, low plastic	70% recovery								
			15	(SW) F Sand with 10% M. Sand	H.Nu-1.0 unit*								
	26		17										

COMMENTS: End of boring at 26 feet
 * Elevated H.Nu readings appear to be due to moisture in soil
 All Gamma radiation field-screening results at background levels.

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 1353-3

PAGE 1 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-11-91

INSPECTOR: Greg Hall

BOREHOLE DEPTH: 27.0 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-0.5 10y-3/2 Fine sandy loam topsoil	
			1	0.5-2 10y-3/2 Dry, loose sandy silt	
			2	(ML)	
			3		
	2		4		25% recovery
			5	Same as 0.5' to 2.0'	
			6	(ML)	
			7		
	4		12		50% recovery
			18	4.5-6 10y-5/4 Dry, loose, nonplastic	
			36	(SP) Fine Sand with Cobbles	
			40		50% recovery
	6		58	10y-6/1 Dry, loose, nonplastic	
			54	(SP) Sand with gravel and cobbles.	
			41		75% recovery
			45		
	8				
				(SP) 8' to 15' Cobbles	
	10				
				8 Boulders in sand,	
	12				
				No samples collected.	
	14				
			28	15-16' Same as 6-8' (SP)	
	16		50/30		50% recovery
	17				
			17	17-17.4 Dry, loose, nonplastic coarse sand	
	18		20	(SP) w some gravel 10y-4/3	50% recovery
			22	17.4-18 10y-5/3 Dry, loose, nonplastic	
	19		22	(SW) - 40y-5/3 medium bedded F. Sand	100% recovery
			13		
	20		19	Same as 17.4' to 18'	
			21	(SW)	
	21		24		100% recovery
			25	10y-6/4 Same as 17.4' to 21'	
	22		22	(SW)	
			20		100% recovery
	23		8		100% recovery
			8		
	24		15	Same as 17.4' to 23'	
			16	(SW)	50% recovery
	25		18		

COMMENTS: Unless otherwise indicated, field screening results for gamma radiation and VOCs at background.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 1353-3

PAGE 2 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-11-91

INSPECTOR: Greg Hall

BOREHOLE DEPTH: 27 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG/DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT 140 lb

LENGTH OF FALL 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	24				
	25				
	26	10		(SW) Same as 17.4' to 25'	100% recovery
	26	20			
	27	16			
	27	21			
	28			End of Boring - 27'	
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
	48				

COMMENTS: Unless otherwise indicated, Field screening results for gamma radiation and Voc's at background.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 145B-1

PAGE 1 OF 1 GR5B-16

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-25-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 25 FT. BELOW GROUND SURFACE

WELL DEPTH: 24.5 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW-18 installed See well log for well construction details.	0			Upper .3' 10YR 6/4 Fine and med sand, trace (SP) coarse sand. Dry, nonplastic, loose.	
			3		
			5		
			6	Lower .7' 10YR 3/3 Dry, nonplastic, loose silt and fine sand, trace med-coarse sand, trace organic matter.	50% recovery
	2		4	(SM-ML)	
			5		
			4		
			3		
			3	No recovery, Rock in sampler tip	No recovery
	4		5		
			2	10YR 3/2 Fine sand and silt, trace organics	
			7		
			5	(SM-ML)	25% recovery
	6		6	10YR 5/3 Dry, nonplastic, loose	
			5	poorly sorted sand, 10% rounded gravel. upper 2' to 3' contained	HWS = 2 units in silt layer
			7	(SW-SM) 20% silt	40% recovery
	8		9	upper .4' same as above	
			12	Lower .6' 10YR 5/4 poorly sorted sand, 10% gravel. Dry, nonplastic, loose	
			10	(SW)	50% recovery
			24	10YR 5/4 Dry, nonplastic, loose poorly sorted sand, 10% gravel; .3 ft layer of "coal" or "ash".	HWS = 2 ppm on "coal" or "ash" layer.
			27	(SW)	45% recovery
	12		7	10YR 5/3 Dry, nonplastic, loose, poorly sorted sand, 30% silt, 10% subangular gravel.	
			11	(SM)	15% recovery
			10		
			19		
	14		12	10YR 6/4 moist, non plastic, soft	
			6	Fine sand, trace (?) silt	
			6	(SW)	
	16		8	10YR 6/4 WET-SATURATED, non plastic, soft	50% recovery
			8	Fine sand, trace (?) silt,	HWS = .5 units
			9	orange mottling evident throughout sample.	80% recovery
	18		8		
	20				
	22				
	24				
				End of boring 25; no split-spoon sample collected	

COMMENTS:

Boring terminated at 18'

Bottom of fill encountered at 10.6'

ALL RAD readings at background levels.

End continuous split-spoon sampling at water-table; 16'

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 155B-1
GR5B-20

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-26-91

INSPECTOR: TIM WARR/STEVE LAWLOR

BOREHOLE DEPTH: 10 FT. BELOW GROUND SURFACE

WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL

GROUNDWATER ELEVATION: N/A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			10YR 5/5 SOFT, Dry, Low PLASTICITY	
			4	(ST) Fine Sand, 10% Silt, 10% subangular gravel	
			3		
			4		
			5		
	2		5	10YR 3/2 SOFT, moist, low-mud PLASTICITY	50% RECOVERY
			5		
			9		
			14		
	4		15	SILT, 100% Fine SAND, 10% subangular gravel.	50% recovery
			15		
			11		
			7		
	6		6	NO RECOVERY	NO RECOVERY
			3		
			2		
			3		
	8		5	NO RECOVERY	NO RECOVERY
			3		
			5		
			5		
	10		6	10YR 6/2 SOFT-FIRM, SATURATED, LOW PLASTICITY	
				Fine SAND, 100% SILT	
					75% recovery
				End of boring 10'	
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 10'
All H₂O and RD readings at background levels
NO FILL ENCOUNTERED

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 155B-2

PAGE / OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-26-91

INSPECTOR: STEVE LAWLER / TIM WARR

BOREHOLE DEPTH: 6 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			Upper 9' : 10yr 3/3 soft, dry, low plasticity (SP-SM) FINE SAND, 10% SILT	H _{NV} = 0.2
			3		
			7		
			8		
	2		11	Lower 9' : 10yr 3/2 soft, moist, mod plasticity (SM) SILT w/ 40-50% fine sand. Ash layer at 1.1-1.6'	75% recovery
			10		
			11		
			10		
			10		
	4		5	NO RECOVERY, ROCK FRAGMENT IN SAMPER TIP.	NO RECOVERY
			2		
			2	10yr 5/2 FIRM, SATURATED, LOW PLASTICITY FINE SAND, 10% med SAND, 10% SILT.	H _{NV} = 0.2
	6		1	(SP-SM)	80% recovery
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

- Boring terminated @ 6'
- All H_{NV} and RAD readings at background levels
- no FILL ENCOUNTERED

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: ZZ81-11-01

WELL LOG

WELL NUMBER: 17SB-1

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-24-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 8 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG/DAVEY KENT

SAMPLER 1 3/8" SPLIT SPOON

HAMMER WEIGHT 140 lb

LENGTH OF FALL 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		10	10YR 4/4 SOFT, moist, nonPLASTIC	H ₂ O = 0.1 units 40% recovery 30% recovery NO RECOVERY 50% recovery
			15	Fine - coarse SAND, 25% subang.	
			12	gravel, trace silt & organics.	
			18	(SW) brick & metal frags present	
	2		6	10YR 3/2 SOFT, moist, nonPLASTIC	
			7	Fine - coarse SAND, 5% subang.	
			5	gravel. 15% organic.	
			2	(SW)	
			1		
			1		
			2		
	6		1	NO RECOVERY	
			1	10YR 3/2 FIRM, SATURATED, HIGH PLASTICITY	
			2	CLAY, ~40% SILT, trace FINE SAND	
			2	and organics. 1-2 mm organic	
			1	lamination every 4-6 mm	
	8			(OH)	
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 8'

END OF FILL ENCOUNTERED at 6.3'

ALL RAD readings at background levels.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: ZZ81-11-01

WELL LOG

WELL NUMBER: 17SB-2

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-24-91

INSPECTOR: TIM WARR

BOREHOLE DEPTH: 10. FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		16	10gr 4/3 SOFT, moist, nonplastic, fine to coarse sand, trace silt, trace gravel. Ash layer - 1' thick & concrete/mortar material - 2' thick exists	
			20		
			15		
			19	(SW)	
	2		17	10gr 3/1 SOFT, moist, nonplastic	60% recovery
			15	Fine to coarse sand, trace fine gravel	
			21	(SW)	
	4		24		75% recovery
			14		
			19	10gr 3/1 SOFT, moist, nonplastic	H _{na} = 0.2 units
			17	Fine to coarse sand, trace silt, trace subangular gravel	
	6		20	(SW) 2' thick coal frag lay @ 5.5'	70% recovery
			17	10gr 5/2 SOFT, SATURATED, moderate plasticity	
			4	SILT, 25% clay, 10% organics	
	8		1	(OL-OH) 1-2mm thick organic laminae every 5-10mm	25% recovery
			2		
			1	10gr 3/1 SOFT, SATURATED, High plasticity	
			2	SILT, 40% clay, 15% organics	
	10		1	(OL-OH) (root)	85% recovery
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Being terminated @ 10'
End of Fall encountered at 6.5'
All RAD readings at background levels



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 17SB-3

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-24-91

INSPECTOR: TIM WARR

BOREHOLE DEPTH: 16 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		5	10YR 3/2 SOFT, moist, non plastic	
			7	Fine - coarse sand, 20% silt,	
			10	20% organics, roots. (topsoil)	
			12	(SM)	46% recovery
	2		14	10YR 6/4 SOFT, dry, non plastic	
			17	Fine - medium sand, 25% silt,	
			18	37% subang gravel	
			20	(SM)	5% recovery
	4		13	10YR 5/4 SOFT, moist, non plastic	
			23		
			20	(SM) Fine - coarse sand, trace silt, trace sub-	
	6		20	Angular gravel	75% recovery
			14	10YR 6/4 SOFT, dry, non plastic	
			10	Fine sand, 15% silt, 5% subangular	H ₂ O = 0.2 units
			12	gravel. Silty clay in tie of	
	8		7	(SM-SP) spoon	75% recovery
			7	10YR 4/2 SOFT, moist, high plasticity	
			7	Silt, 40-50% clay.	
			5		
	10		6	(CL-CH)	20% recovery
			5	Upper 4': SAME AS ABOVE	
			5	Lower 3': 10YR 6/8 SOFT, moist, non plastic	
	12		5	Fine to medium sand, trace silt,	25% recovery
			3	trace subrounded gravel	
			3	SY 3/1 SOFT, moist, highly plastic	H ₂ O = 0.2 units
			5	clay, 30-40% silt	
	14		3	(CH)	15% recovery
			1	SY 4/1 SOFT, moist-saturated, high plastic	
			2	clay, 30-40% silt, trace organics	
			3	(H-DT) 1-3mm fines sand/silt beds every 5-10mm	100% recovery
	16		3		
	18				
	20				
	22				
	24				

COMMENTS:

DRILLING TERMINATED AT 16'
ALL RAD READING AT BACKGROUND LEVELS.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 185B-1

PAGE / OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-28-91

INSPECTOR: STEVE LAWLER

BOREHOLE DEPTH: 16 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			10yr 6/6 loose, dry, nonplastic, fine to medium sand (upper 5')	
			4		
			3		
			5	(SD) 10yr 3/3 loose, dry, med plasticity	
	2				75% recovery
			8	10yr 6/3 STIFF, dry, moderate plasticity	
			10		
			8	SILT and FINE SAND, 10% subangular gravel.	
	4			(SM)	70% recovery
			9	10yr 6/3 STIFF, dry, moderate plasticity	
			8		
			9	SILT and FINE SAND, 10% subangular gravel	
	6			(SM)	70% recovery
			7	upper 1.5' SAME AS ABOVE (SM)	
			6	lower 10yr 5/6 Firm, dry, low plasticity	
			7	FINE SAND, 20% SILT	
	8			(SM)	100% recovery
			7	10yr 5/2 Firm, dry, moderate plasticity	
			17		
			14	SILT, CLAY, and FINE SAND	
	10			(ML-CL)	60% recovery
			4	10yr 4/4 STIFF, moist, high plasticity	
			5		
			10	SILT and CLAY, 10% fine sand, 10% angular gravel.	
	12			(ML-CL)	60% recovery
			21	10yr 5/4 STIFF, moist, high plasticity	
			14		
			6	SILT and CLAY, mottling present	
	14			(CL)	55% recovery
			10	10yr 5/3 STIFF, SATURATED, low plasticity	
			14		
			15	FINE SAND, 10% SILT, trace organics	
	16			(ML)	100% recovery
			20		
	18				
	20				
	22				
	24				

COMMENTS:

Bottom of Boring at 16'

ALL HNU and RAD readings at background levels

NO FILL DEFINED

ROY F. WESTON, INC.
 CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY
 LOCATION: WATERTOWN, MA
 WORK ORDER NUMBER: 2281-11-01

WELL LOG
 WELL NUMBER: BKGSA-1
 PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.
 DRILLING DATES: 10-28-91
 INSPECTOR: Steve Lawler
 BOREHOLE DEPTH: 20. FT. BELOW GROUND SURFACE
 WELL DEPTH: 28.0 FT. BELOW TOP OF PVC CASING
 ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL
 GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG	DAVEY KENT
SAMPLER	1 3/8" SPLIT SPOON
HAMMER WEIGHT	140 lb
LENGTH OF FALL	30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW-22 installed. See well log for well construction details.	0				
			8	upper 1' 10yr 4/3 loose, dry, low plasticity, fine (SM) to med SAND WITH SILT.	
			12		
			10	lower 1' 10yr 2/2 soft, dry, low plasticity (SP) fine to med SAND.	
	2		9		50% recovery
			8	10yr 2/2 firm, dry, low plasticity	
			10	Fine SAND with 20% SILT.	
			15		
	4		20	(SM)	60% recovery
			26	upper 1' 10yr 2/2 dry, firm, low plasticity (SM) fine SAND and SILT.	
			18		
			14	lower 1' 10yr 5/4 firm, moist, mod plastic (SM) fine SAND and SILT.	
	6		14		60% recovery
			18	upper 1.5 ft 10yr 5/3 firm, saturated, low plastic. (SM) fine SAND and SILT.	
			26		
			34	lower .5 ft 10yr 5/3 dry, firm, low plasticity med-coarse SAND, 10% angular gravel.	
	8		48		80% recovery
			14	10yr 5/3 firm, moist, low plasticity	
			12	Fine-med. SAND.	
			10	(SP)	
	10		34	10yr 5/3 soft, mod plastic, moist	80% recovery
			38	Fine SAND and SILT.	
			58	(SM)	
	12		34		100% recovery
			48	upper .5' 10yr 6/2 firm, moist, low plasticity (SM) fine-med SAND and SILT.	
			58		
	14		27	lower 1.5' 10yr 2/2 firm, moist, low plasticity (SP-SM) med-coarse SAND, 20% SILT, 10% angular gravel.	100% recovery
			25	10yr 6/2 stiff, dry, low plasticity FINE SAND	
			36	and SILT, 20% angular gravel.	
	16		35	(SP-SM)	
			20	7.5y 4/6 firm, saturated, MEDIUM-COARSE SAND, 20% SILT, 10% angular gravel.	100% recovery
			28		
			502	(SP-SM)	20% SILT
	18		20	7y 4/6 firm, saturated	
			85/4	(SP-SM) MEDIUM-COARSE SAND, 20% SILT, 10% angular gravel.	
	20				50% recovery
	22				
	24				

COMMENTS: BORING TERMINATED at 20'
 ALL HAV and RAD readings at background levels
 NO FILL DEFINED
 MW-22 installed at this location

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: BKS B-2

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-29-91

INSPECTOR: TIM WARR

BOREHOLE DEPTH: 16 FT. BELOW GROUND SURFACE

WELL DEPTH: 24.0 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW-23 installed See well log for well construction details.	0			UPPER 1.5' 10YR 5/6 Dry, soft, nonplastic (SM)	
			4	FINE SAND, 20% SILT	
			6	LOWER 1.5' 10YR 3/2 Dry, nonplastic, soft fine (SM-SW) to coarse sand, 10% silt, 5% coal(?) fragments.	50% recovery
	2		8		
			9		
			17	10YR 6/4 Dry, soft, nonplastic	
			30	FINE-COARSE SAND, 10% subang gravel, 10% silt, 5% wood chips.	
	4		34	(SM-SW)	60% recovery
			50		
			17	10YR 5/4 Dry, soft, nonplastic	
			34	FINE-COARSE SAND, 10% subang gravel, 10% silt	
	6		50	(SW)	25% recovery
				NO SAMPLE COLLECTED, Augured through cobbles	NO SAMPLE COLLECTED
	8				
			17	10YR 5/3 Dry, nonplastic, soft	
			50/4	FINE-COARSE SAND, 15% subang gravel, 10% silt.	
	10			(SW)	25% recovery
			58		
			43	10YR 6/3 Dry, soft, nonplastic	
			35	FINE-COARSE SAND, 10% Ang-subang gravel, 10% silt.	
	12		40	(SW)	60% recovery
			53		
			51	10YR 5/4 Dry, soft, nonplastic fine to coarse sand, 10% subang gravel, 10% silt. 5% clay in lower 5' moist.	
	14		27	(SW-SM)	50% recovery
			15		
			16	UPPER 1' 10YR 5/6 silty CLAY (40% silt)	HVU = 0.2 units
			17	(ML-CL)	
			27	10% fine sand, firm, highly plastic, moist.	
	16		33	LOWER 1' FINE SAND 30% SILT, firm, SAT., LOW PLAST.	75% recovery
	18				
	20				
	22				
	24				

COMMENTS:

Being terminated at 16'

ALL RAD READINGS at background levels.

END OF FILL ENCOUNTERED at approx. 5'

MW-23 installed at this location

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: ZZ81-11-01

WELL LOG

WELL NUMBER: BKS-B-3

PAGE / OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-29-91

INSPECTOR: TIM WARR

BOREHOLE DEPTH: 42 FT. BELOW GROUND SURFACE

WELL DEPTH: 34.6 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW 16A installed: See Well Log for Well construction details.	0			10yr 3/2 Dry, soft, nonplastic	
			6		
			30		
			32		
			40	(SW-SM)	
	2		20	10yr 6/4 Dry, soft, nonplastic	
			18		
			19		
			35	(SP-SM)	
	4		22		
			45	10yr 6/2 Dry, soft, nonplastic	
			54		
			50	(SW)	
	6		25	10yr 5/4 Dry, soft, nonplastic	
			27		
			29		
			50	(SW)	
	8		30	10yr 5/4 Dry, soft, nonplastic	
			29		
			24		
			30	(SW)	
	10		30	10yr 5/4 Dry, soft, nonplastic	
			37		
			48		
			17	(SW)	
	12		23		
			30	2.5y 4/2 Moist, firm, mod. plasticity	
			17		
			25	(ML)	
	14		10	2.5y 5/4 SATURATED, FIRM, MODERATE PLASTICITY	
			12		
			14		
			20	(ML)	
	16				
	18				
	20				
			3	10yr 5/4 SATURATED, soft, nonplastic	
			8		
			13		
			17	(SM-ML)	
	22				
	24				

COMMENTS:

MW-16A installed at this boring location.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: BKS-3

PAGE 2 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-29-91

INSPECTOR: TIM WARR

BOREHOLE DEPTH: 42 FT. BELOW GROUND SURFACE

WELL DEPTH: 2.6 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW16A installed. See well log for well construction details.	24				
	25				
	26				
	27	9		10YR 5/6 SATURATED, FIRM, NON PLASTIC	
	27	16		(SM) FINE SAND, 20% SILT (Upper 1')	
	28	24		7.5YR 4/2 SILTY CLAY INTERBEDS, 5% FINE SAND,	
	28	30		(Lower 1')	100% recovery
	30				
	32	6		2.5Y 5/4 SATURATED, FIRM, LOW PLASTICITY	
	32	16		SILT, 15% CLAY, 10% FINE SAND	
	32	27		(ML)	100% recovery
	32	4			
	34			NO SAMPLE - AUGERED THROUGH CUTTER.	
	35				
	37	70		10YR 5/4 FIRM, NON-LOW PLASTIC, MOIST	
	37	50/4		FINE-COARSE SAND, 20% SILT, 10% SWAMY GRAVEL, 5% CLAY (TILL)	
	38			(SW-SM) (NOTE: SILTY CLAY w/ 20% FINE SAND INTIP)	
	40				
	42	13		7.5YR 4/2 STIFF, DRY, NONPLASTIC	
	42	36		SILT, 15% FINE SAND, 10% M-C SAND,	
	42	50/5		(SM-ML) 10% ANGLE GRAVEL. (TILL)	30% recovery
	42			42" Auger refusal = split-spoon refusal.	
	44				
	46				
	48				

COMMENTS:

Boring terminated at 42' (Auger refusal). Continuous split spoon sampling was conducted to the water table and followed at 5-foot intervals. All HNU and RAD readings were at background levels. Bottom of fill defined at ~12-13 ft.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: Bksb-C

PAGE / OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-29-91

INSPECTOR: TIM WARR

BOREHOLE DEPTH: 14 FT. BELOW GROUND SURFACE

WELL DEPTH: 20.0 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW-24 installed. See well log for well construction details.	0		8	10YR 5/4 SOFT, DRY, nonplastic	
			12	Fine to coarse sand, 20% silt	
			13	10% subangular gravel, 10-20%	
			15	(SM)-(SW) organics	55% recovery
	2		8	10YR 5/4 SOFT, moist, low plasticity	
			13	Fine sand, 25% silt, 10%	
			23	med-coarse sand, 10% subangular	25% recovery
			20	(SW-SM) trace clay.	
	4		8	10YR 5/4 SOFT, moist, low plasticity	
			10	Fine - coarse sand, 10% subangular	
			12	(SW-SM) gravel, 10% silt, trace clay	40% recovery
	6		12		
			8		
			12		
	8		10	NO RECOVERY	no recovery
			9	upper 1': 10YR 5/3 SOFT, dry, nonplastic	
			14	(SW-SM) Fine - coarse sand, 5% subangular	
			9	gravel, 20% silt.	
	10		12	lower 1': 10YR 4/4, silty fine sand, 40% silt, 10% organics	45% recovery
			16	upper 1': 10YR 3/1 organic silt, 40% organics, 10%	
			27	(SM-OL) fine sand, soft, moist, low plastic.	
			55	(SM-OL) 10YR 4/4 FINE SAND, 40% silt, 10%	
	12		50	(SM-OL) organics, soft, dry, nonplastic.	75% recovery
			34	10YR 6/4 SOFT, SATURATED, nonplastic	
			30	FINE SAND, 10% SILT	
			48	(SP-SM)	90% recovery
	14		56		
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 14'.

FILL DEPTH ESTIMATED at approximately 9 feet.

ALL HNU and RAD sample readings at background levels.

MW-24 installed at -his' north, location



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-1

PAGE / OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10/27/91

INSPECTOR: RICHARD EICHEN

BOREHOLE DEPTH: 10 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			upper .5' loamy topsoil	
			8	lower .5' 10yr 5/3 dry, loose, nonplastic	
			8	poorly sorted sand and silt, 10%	
			10	(SM) angular gravel	
			9		50% recovery
	2		8	10yr 5/3 dry, loose, nonplastic	
			17	poorly sorted sand, 10% silt,	
			8	angular gravel	
			6	(SW-SM)	50% recovery
	4		8	10yr 5/3 dry, loose, nonplastic poorly	
			4	sorted sand, 10% silt, angular	
			3	(SW-SM) gravel	50% recovery
			2		
	6		2		
			3		
			2	no recovery	no recovery
			2		
	8		3	2.5y 6/6 SATURATED, LOW PLASTICITY, SOFT	
			2	SILT, 25% fine sand, trace	
			2	med-coarse sand, 4' thick layer of	
	10		2	(ML-DL) organic silt.	50% recovery
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

BORING terminated at 10'
ALL HNU and RAD readings at background levels
NO FILL ENCOUNTERED

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-2

PAGE / OF /

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-27-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 16 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-0.7' Concrete flooring	
				0.7'-2' 10gr 5/6 loose, dry, nonplastic	
		10		upper .5' : loamy to plastic, loose, dry, nonplastic	
		13		lower .5' : 10gr 5/6 fine-coarse sand, trace gravel.	90% recovery
	2	22		10gr 5/6 loose, dry, nonplastic	
		27		fine-coarse sand, trace gravel	
		21		(SW)	
	4	29		upper 1.6' same as above	75% recovery
		27		lower .4' 10gr 5/4 stiff-moist, mud	
		10		plastic clayey silt (30% clay)	
	6	7		(ML)	100% recovery
		33		10gr 6/3 dry-moist, loose, nonplastic	
		37		50% fine sand and 50% silt, grading	
		31		to 80% fine sand with 20% med-	
	8	29		(SM-SW) coarse sand & submy gravel.	75% recovery
		12		10gr 5/6 moist, wet, mud. plastic. silt	
		16		(ML) w/ 10% fine sand, trace clay.	
		19		lower .6' : 10gr 7/3 moist, coarse, nonplastic fine	
	10	12		(SW) to coarse sand w/ 50% submy gravel.	60% recovery
		5		10gr 7/3 moist, loose, nonplastic fine to	
		16		coarse sand w/ 50% submy	
	12	12		(SW) gravel.	60% recovery
		28		10gr 7/3 wet, loose, nonplastic fine to	
		21		coarse sand w/ 50% submy	
	14	13		(SW) gravel	40% recovery
		47		10gr 7/3 saturated, loose, nonplastic fine	
		34		to coarse sand w/ 50%	
	16	24		(SW) submy. gravel	50% recovery
		19			
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 16'
 All H₂O and R/S readings at background levels.
 No fill encountered.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-3

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-27-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 4.0 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			Upper 4' LOAMY TOPSOIL (SM-PF)	
		5		Lower 8' 10gr 5/6 LOOSE, Dry, nonplastic	
		6		Fine - coarse sand, trace silt, trace gravel.	
	2	8	(SW)		60% recovery
		6		10gr 5/6 LOOSE, Dry, nonplastic	
		7		Fine - coarse sand, trace silt, trace gravel.	
	4	8	(SW)		50% recovery
		19		10gr 5/6 LOOSE, Dry, nonplastic,	
		34		Fine - coarse sand, trace silt, trace gravel.	
	6	20	(SW)		40% recovery
		33		10gr 5/6 LOOSE, Dry, nonplastic,	
		50/2		Fine - coarse sand, trace silt, trace gravel.	
	8		(SW)		25% recovery
		30		10gr 5/6 LOOSE, Dry, nonplastic,	
		50/1		Fine - coarse sand, trace silt, trace gravel.	
	10		(SW)		25% recovery
		24		Upper .75ft - same as above	
		21		Lower .35ft 10gr 5/4 CLAY with 35% silt, trace fine sand.	
	12	18	(CL)		50% recovery
		11		moist, soft, mod plastic.	
		9		10gr 5/4 wet, soft, mod plastic	
		9		CLAY with 20% silt, trace fine sand.	
	14	19	(CL)		60% recovery

COMMENTS:

Boring terminated at 14'
All Hvu and RAD readings at background levels
No Fill encountered.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 45B-1
GRSB-4

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-27-91

INSPECTOR: RICHARD EICHMANN

BOREHOLE DEPTH: 2.5 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-1.5' ASPHALT ROADWAY & BASE MATERIAL	
		23		1.5-1.8' 10yr 2 1/2-5/3 Dry, LOOSE NONPLASTIC	
		50/3		45% FINE-COARSE SAND, 45% SILT, 10% SUBANG. GRAVEL	
	2			(SM)	40% recovery
				Spoon refusal on metal object at 2.5'	
	4				
	6				
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated due to auger/spoon refusal on a metal object at 2.5'
ALL HNU and RAD readings at background levels
No substantial thickness of fill encountered below asphalt base course.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-5

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-27-91

INSPECTOR: R. EICHMANN

BOREHOLE DEPTH: 14.0 FT. BELOW GROUND SURFACE

WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL

GROUNDWATER ELEVATION: N/A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG	DAVEY KENT
SAMPLER	1 3/8" SPLIT SPOON
HAMMER WEIGHT	140 lb
LENGTH OF FALL	30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			10yr 4/2 loose, dry, nonplastic	
			2	loamy topsoil, grass roots	
			3		
			5		
	2		4	(SM - Pt)	35% recovery
			5		
			8	10yr 6/2 loose, dry, nonplastic	
			5	80% fine-coarse sand, 20% gravel, 10% brick fragments.	
	4		4	(SW)	50% recovery
			3		
			4	10yr 6/2 loose, dry, nonplastic	
			9	45% fine-coarse sand, 20% gravel	
	6		23	(SM) 25% silt, 10% brick fragments	50% recovery
			28		
			50	10yr 6/2 loose, dry, nonplastic	Huv = .4 units
			50/1	45% fine-coarse sand, 20% gravel	
	8			(SM) 25% silt, 10% brick fragments	50% recovery
			50		
			50/2	10yr 6/2 loose, dry, nonplastic	Huv = 1 unit
				45% fine-coarse sand, 20% gravel	
	10			(SM) 25% silt, 10% brick fragments	40% recovery
			11		
			13	2.5y 5/2 firm, moist, mod. plasticity	
			17	silty clay (30% silt, 10% fine sand) 1" thick interbeds of silt w/ 10% clay	
	12		18	(LL)	60% recovery
			22		
			30	2.5y 5/2 firm, moist, mod. plasticity	
			40	silty clay (30% silt, 10% fine sand) 1" thick interbeds of silt w/ 10% clay.	
	14		27		80% recovery
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 14'
All RAD readings at background levels
Bottom of fill encountered at 10'

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSG-6

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-27-91

INSPECTOR: RICHARD EICHORN

BOREHOLE DEPTH: 14 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG	DAVEY KENT
SAMPLER	1 3/8" SPLIT SPON
HAMMER WEIGHT	140 lb
LENGTH OF FALL	30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		6	Upper .5' 10gr 4/2 loamy topsoil, loose, dry, non-plastic (SM)	
			14		
			12	Lower .7' 10gr 5/6 loose, dry, non-plastic	
			18	70% fine-coarse sand, 20% submy gravel, 10% silt	
	2		22	10gr 5/6 loose, dry, non-plastic	60% recovery
			44		
			32	70% fine-coarse sand, 20% submy gravel, 10% silt.	
	4		34	(SW)	50% recovery
			23		
			26	10gr 5/6 loose, dry, non-plastic	
			30	70% fine-coarse sand, 20%	
	6		32	(SW) submy gravel, 10% silt.	65% recovery
			37		
			50/2	10gr 5/6 loose, dry, non-plastic	
				(SW) 70% fine-coarse sand, 20%	
	8			submy gravel, 10% silt	50% recovery
			30		
			37	10gr 5/6 loose, dry, non-plastic	
			34	70% fine-coarse sand, 20%	
	10		39	(SW) submy gravel, 10% silt.	60% recovery
			8		
			18	10gr 4/4 loose-soft, wet-saturated, low plasticity	
			27	50% fine-coarse sand, 50% silt	
	12		28	(SM)-(ML)	50% recovery
			27		
			29	10gr 4/4 saturated, non-low plastic, loose.	
			18		
	14		34	(SM-ML) 50% fine-coarse sand, 50% silt.	75% recovery
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 14'
 All H₂O & gas readings at background levels
 No fill encountered.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-7

PAGE / OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-30-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 16 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		6	10gr 5/6 dry, soft, nonplastic	
			10		
			20	Fine-med sand, trace coarse sand, trace gravel, trace asphalt & wood pieces.	
			2	(SP)	
	2		20		50% recovery
			33		
			50/5	no recovery	
	4				no recovery
			20	10gr 5/3 dry, loose, nonplastic	
			40	45% fine-coarse sand, 45% angular gravel, 10% silt.	
			45	(SW)	50% recovery
	6		50/4		
			52	10gr 5/3 dry, loose, nonplastic	
			53	45% fine-coarse sand, 45% angular gravel, 10% silt.	
			36	(SW)	50% recovery
	8		48		
			30	10gr 5/3 dry, loose, nonplastic	
			48	45% fine-coarse sand, 45% angular gravel, 10% silt.	
			53	(SW)	50% recovery
	10		51		
			40	10gr 6/4 dry, loose, nonplastic	100% recovery
			23	45% fine-coarse sand, 50% gravel (angular)	
	12		19	(SW)	75% recovery
			23		
			20	10gr 6/5 moist, loose, nonplastic	
			24	50% fine-coarse sand	
	14		20	(SW)	50% recovery
			21	50% gravel.	
			9	upper .5' saturated, loose nonplastic 50% fine-coarse sand, 50% angular gravel.	
			10		
			9	lower 1.1' 2.5gr 5/2 silty clay (40%-50%) saturated, firm, high plast. fill	50% recovery
	16		8	(CL-CH)	
	18				
	20				
	22				
	24				

COMMENTS:

- Boring terminated at 16'
- All Hsu and Rod readings at background levels.
- Bottom of Fill encountered at 2-4'.

ROY F. WESTON, INC.
 CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY
 LOCATION: WATERTOWN, MA
 WORK ORDER NUMBER: ZZ81-11-01

WELL LOG
 WELL NUMBER: GRSB-8
 PAGE / OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.
 DRILLING DATES: 10-30-91
 INSPECTOR: Richard Eichhorn
 BOREHOLE DEPTH: 16 FT. BELOW GROUND SURFACE
 WELL DEPTH: NA FT. BELOW TOP OF PVC CASING
 ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL
 GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG	DAVEY KENT
SAMPLER	1 3/8" SPLIT SPOON
HAMMER WEIGHT	140 lb
LENGTH OF FALL	30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			Upper 5' 20yr 2/1 SOFT, nonplastic, dry loamy (SM-PT) topsoil, grass roots.	POSSIBLE FILL 60% recovery Recovery 12"
			3		
			4		
			17		
	2		13	Lower 7' 10yr 6/2 SOFT, nonplastic, dry (SW) 25% fine sand, 25% med sand, 25% coarse sand, 25% gravel.	50% recovery
			5		
			6		
			6		
	4		6	7.5y 3/2 SOFT, dry, nonplastic SILT, 10% fine-coarse sand, trace organics. (previous topsoil) (ML)	60% recovery
			19		
			27		
			40		
	6		41	10yr 6/3 SOFT, dry, nonplastic medium sand, 10% fine sand, 10% coarse sand, 10% subang-any gravel. (SW)	65% recovery
			17		
			50		
			50/2		
	8		29	10yr 6/3 SOFT, dry, nonplastic medium sand, 10% fine sand, 10% coarse sand, 10% subang-any gravel. (SW)	40% recovery
			50/3		
			47		
			63		
	10		84	10yr 6/3 SOFT, moist, nonplastic 50% GRAVEL, 35% fine sand, 10% coarse sand, 5% medium sand. Gravel is rounded. (GP)	60% recovery
			35		
			56		
			27		
	12		26	Upper .9' : SAME AS ABOVE Lower .3' : 2.5yr 4/4 moist, firm, highly plastic CLAY with 40% SILT (CL-CH)	50% recovery
			9		
			16		
			18		
	14		13	2.5 yr 4/4 SATURATED, firm, highly plastic SILT and CLAY (50% each) (CL-CH)	
	16				
	18				
	20				
	22				
	24				

COMMENTS: Boring terminated @ 16'
 All H₂O & RAO readings @ background levels
 Bottom of fill at 2.0'.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-9

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-30-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 8 FT. BELOW GROUND SURFACE

WELL DEPTH: VA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: VA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			Upper 5' 2.5 gr 5/4 loose, dry, non plastic	
		34		(SP) Fine sand, trace silt and coarse sand.	
		27		Lower 5' 1/4 gr 2/2 loose, original plastic	
		31		(ML) Silt, 25% fine sand, trace coarse sand.	50% recovery
	2	9			
		12			
		14			
	4	15		no recovery	no recovery
		4			
		1			
		2			
	6	1		no recovery, some in sampler tip	no recovery
		2			
		2			
		1			
	8	3		no recovery	no recovery
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

- Boring terminated to 8' due to presence of steam tunnel beneath hole.
- Full depth uncertain
- H₂O & RAD readings at background levels.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2251-11-01

WELL LOG

WELL NUMBER: GRSB-10

PAGE 1 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: October 30, 1991

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 26 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			Upper 5' 21'	
		16		10yr 6/4 - 6-2 to 10yr 5/4 well, dry, nonplastic fine sand, 10% coarse sand, trace subangular gravel	
		16		(SP)	
	2	14		10yr 6/4 loose, dry, nonplastic fine sand, trace med & coarse sand.	50% recovery
		14		(SP)	
		30		COARSE SAND 70% increased to ~15% in lower 6"	
	4	14		10yr 5/4 soft, dry, nonplastic fine to coarse sand, 10% subangular	50% recovery
		48		(SP) gravel	
		32		(SP)	
	6	21		2.5yr 5/4 soft, dry, nonplastic fine to coarse sand, 10% subangular	65% recovery
		17		(SP)	
		32		(SP) gravel. Moisture medium sand	
	8	11		UPPER .4' 2.5y 5/4 moist-dry, loose, nonplastic fine to coarse sand, trace gravel.	50% recovery
		14		(SW)	
		18		LOWER .7' 2.5y 6/4 moist-dry, loose, nonplastic fine sand	
	10	22		(SP)	90% recovery
		22		UPPER .3' 2.5y 6/4 loose, dry, nonplastic well sorted fine sand	
		31		(SP)	
		28		LOWER .7' 2.5y 4/4 firm, dry, nonplastic fine-coarse sand, 10% subang. gravel.	
	12	29		(SW)	50% recovery
		28		2.5y 4/4 firm, dry, nonplastic fine-coarse sand, 10% subang gravel	
		23		(SW)	
	14	33		10yr 5/4 damp, loose, nonplastic well sorted fine sand	50% recovery
		15		(SP)	
		15		(SP)	
	16	17		UPPER .4' SAME AS ABOVE	75% recovery
		16		LOWER .1' 10yr 5/4 soft, dry, nonplastic fine-coarse sand, 15% med-coarse subang gravel.	
	18	19		(SW)	70% recovery
		14		10yr 4/4 soft, dry, nonplastic fine-coarse sand, 15% med-coarse gravel.	
		14		(SW)	
	20	13		10yr 4/4 soft, damp, nonplastic fine-coarse sand, 15% med-coarse gravel	60% recovery
		12		(SW)	
		W.D.R.		10yr 4/4 soft, damp, nonplastic fine-coarse sand, 15% med-coarse gravel	
	22	31		(SW)	50% recovery
		38		(SW)	
		33		10yr 4/4 soft, damp, nonplastic fine-coarse sand, 15% med-coarse gravel	
		36		(SW)	
	24	31		(SW)	40% recovery
		36		(SW)	

COMMENTS:



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-10

PAGE 2 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: OCTOBER 30, 1991

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 26 FT. BELOW GROUND SURFACE

WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL

GROUNDWATER ELEVATION: N/A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	24			SOFT, moist, non plastic	
		22		10yr 4/4 Fine - coarse sand, 40% gravel, 10% silt.	
		26			
		30			
	26	30		(SW-SM)	
		36		10yr 4/4 SOFT, moist, non plastic	
		32		Fine - coarse sand, 40% gravel, 10% silt	
		40			
	28	32		(SW-SM)	
		28		10yr 4/4 SOFT, moist, non plastic	50% recovery
		16		Fine - coarse sand, 40% gravel, 10% silt.	
	30	12		(SW-SM)	30% recovery
		22		10yr 4/4 SOFT, moist, non plastic	
		20		Fine - coarse sand, 40% gravel, 10% silt	
		17			
	32	16		(SW-SM)	50% recovery
		22		10yr 5/4 WET, SOFT, SLIGHTLY PLASTIC	
		13		FINE SAND AND SILT (50% EACH), TRAC COARSE SAND.	
	34	12		(SM)	75% recovery
		8		10yr 5/4 SATURATED, SOFT, SLIGHTLY PLASTIC	
		8		FINE SAND, 25% MED SAND, 65% SILT	
	36	8			50% recovery
	38				
	40				
	42				
	44				
	46				
	48				

COMMENTS:

Boring TERMINATED at 36'

NO FILL ENCOUNTERED

ALL HNU & RAD READINGS AT BACKGROUND LEVELS.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-C1

WELL LOG

WELL NUMBER: GRSB-11

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-24-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 8 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		50/5	10yr 3/1 moist, soft, low plasticity	
				CLAYEY SILT (5% clay), 25% organics.	
				(ML)	
	2			evidence of cobbles @ 1.5-2'	20% recovery
			14	10yr 5/4 poorly sorted sand, 20% silt,	
			16	10% gravel. Dry, nonplastic, loose	
			20	(sw-sm) Evidence of cobbles @ 4'	25% recovery
	4		14		
			8	10yr 5/4 WET, loose, nonplastic	
			18	poorly sorted sand, 20% silt,	
			8	10% gravel	15% recovery
	6		4	(sw-sm)	
			5	10yr 5/4 SATURATED, loose nonplastic	
			3	poorly sorted sand, 20% silt,	
			3	10% gravel	45% recovery
	8		6	(sw-sm)	
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring Terminated @ 8'

Bottom of fill encountered at 6'

All Hw and Rts readings at background levels.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-12

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-28-91

INSPECTOR: STEVE LAWSON

BOREHOLE DEPTH: 8 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0				
			2	10YR 3/3 SOFT, Dry, low-mud plasticity	
			3	Fine-medium SAND and SILT,	
			4	10% subangular gravel, (topsoil)	
			4	organic	
	2		7	10YR 6/3 FIRM, moist, high plasticity	75% recovery
			8	FINE SAND, SILT, and CLAY, MOTTLED	
			7	PRESENT at 3-feet.	
	4		10	(ML-CL)	100% recovery
			4	10YR 5/3 STIFF, SATURATED, high plasticity	
			7	FINE SAND, SILT, and CLAY	
	6		8	(ML-CL)	100% recovery
			10	10YR 5/3 STIFF, SATURATED, high plasticity	
			11	FINE SAND, SILT, and CLAY	
			13	(ML-CL)	
	8		15		100% recovery
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 8'
ALL H₂O & RAD readings at background levels
NO FILL DEFINED

ROY F. WESTON, INC.
 CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY
 LOCATION: WATERTOWN, MA
 WORK ORDER NUMBER: 2281-11-01

WELL LOG
 WELL NUMBER: GRSB-13
 PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.
 DRILLING DATES: 10-31-91
 INSPECTOR: TIM WARR
 BOREHOLE DEPTH: 24 FT. BELOW GROUND SURFACE
 WELL DEPTH: NA FT. BELOW TOP OF PVC CASING
 ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL
 GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG	DAVEY KENT
SAMPLER	1 3/8" SPLIT SPOON
HAMMER WEIGHT	140 lb
LENGTH OF FALL	30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			10yr 6/6 SOFT, Dry, nonplastic	
		15		Fine SAND, 10% silt, 10% m-c sand, 10% submy gravel, trace organics, 10% coal and brick fragments.	H _{NV} = 0.2 units
		22		(SP-SM)	65% recovery
	2	23		Brick and mortar pieces	H _{NV} = 0.2 units
		8		(Fill)	85% recovery
		10			
		11			
	4	23		10yr 5/4 SOFT, Dry, nonplastic	
		40		Fine - coarse SAND, 10% subangular gravel, 10% silt.	
		27		(SW)	35% recovery
	6	27		10yr 6/4 SOFT, Dry, nonplastic.	
		40		Fine - coarse SAND, 20% subangular gravel, 10% silt.	
		50/2		(SW)	35% recovery
	8	32		upper 1': 10yr 3/2 SOFT, Dry, nonplastic	
		37		(SP) Fine SAND, 10% brick frag, 10% organics, (Bunker topsoil?)	H _{NV} = 1.0 unit
		42		Lower 1': 10yr 5/4 Fine - coarse SAND, 15% submy gravel, 10% silt, Dry, SOFT, Nonpl.	60% recovery
	10	32			
		9		10yr 5/4 SOFT, Dry, nonplastic. Fine - coarse SAND, 10% submy gravel, 5% silt.	
		17		(SW)	60% recovery
	12	23			
		47			
		65		10yr 5/4 SOFT, Dry, nonplastic.	H _{NV} = 4.0 units
		27		Fine to coarse SAND, 10% submy gravel, 5% silt.	70% recovery
	14	26		(SW)	
		26		10yr 5/4 Dry, SOFT, nonplastic	
		29		Fine to med SAND, 10% coarse SAND, 5% silt	30% recovery
	16	31		(SP)	
		19		10yr 6/4 moist, SOFT, nonplastic	
		13		(SP) Fine SAND, 10% med sand, trace coarse SAND, trace silt.	70% recovery
	18	14			
		18		10yr 6/4 moist, SOFT, nonplastic	
		21		Fine SAND, 5% med SAND, 5% silt	H _{NV} = 6.0 units
	20	17		(SP) HEAVY IRON STAINING in oil at bottom of sample.	60% recovery
		26			
		23		10yr 3/2 SOFT, nonplastic, OIL SATURATED	H _{NV} = 24 units
		20			
		27		(SP) Fine SAND, 10% silt, 5% med SAND. Top 0.5' of sample not OIL SATURATED	100% recovery
	22	17			
		26		10yr 3/5 SOFT, nonplastic, OIL SATURATED	H _{NV} = 21 units
		30		Fine SAND, 10% silt, 5% med SAND. Not as stained as 20-22 sample.	100% recovery
	24	18			
		21			

COMMENTS:

Boring terminated at 24'
 ALL RAD readings at background levels
 Approximate Fill DEPTH = 9 Feet.

ROY F. WESTON, INC. CLIENT: Army Materials Technology Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-11SB-2 PAGE 1 OF 1 GRSB-14									
DRILLING CONTRACTOR: R & R International, Inc DRILLING DATES: 10-14-91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 26 FT. BELOW GROUND SURFACE WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL GROUNDWATER ELEVATION: N/A FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRILL RIG</td> <td style="width: 50%;">Dauey Kent</td> </tr> <tr> <td>SAMPLER</td> <td>13/8" split spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>140 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>30"</td> </tr> </table>		DRILL RIG	Dauey Kent	SAMPLER	13/8" split spoon	HAMMER WEIGHT	140 lb	LENGTH OF FALL	30"
DRILL RIG	Dauey Kent												
SAMPLER	13/8" split spoon												
HAMMER WEIGHT	140 lb												
LENGTH OF FALL	30"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
No well installed	0			Ground Surface									
		S#1	20	0-0.5 Asphalt Layer									
			28	(SP) munsell 10yr 2/2 Dry Course Sand with 20% rounded Gravel	70% recovery								
	2		20										
		S#2	12	(SP) 10yr 3/3 Dry Course Sand									
			18	sm Dry soft Fine to med Sand									
			26	with 20% angular Gravel. 10yr 3/3	20% recovery								
	4		28										
		S#3	32	(SP) Coarse Sand with 20% rounded Gravel. 10yr 5/6	90% recovery								
	5		30										
			57										
	6		50/34	10yr 7/2 Dry loose med to (SP) Coarse Sand with 20% angular Gravel.	100% recovery								
	8		60/4"	10yr 3/3 Moist, Firm, low plasticity Fine Sand and (SM) silt with 20% Coarse Sand subangular Gravel.	100% recovery								
	10		60/0"	No recovery core-barrel refusal.	No recovery								
	13		100/0"	No recovery core-barrel refusal.	No recovery								
	15		9	10yr 6/6 Dry F-m Sand									
			34	(SP-sm) Dry, soft C. Sand with 10% rounded Gravel and 10% F. Sand	100% recovery								
			26										
			30										
			24	10yr 6/6 Dry soft, C. Sand									
			38	(SP-sm) with 10% rounded Gravel and 10% F. Sand	100% recovery								
	18		100/5"										
			51	10yr 6/3 Dry soft F. to m (SP-sm) Sand with 30% rounded Gravel	100% recovery								
			55										
		53											
20		39	10yr 6/4 Dry soft m to c Sand										
		36	SP-sm with 40% rounded Gravel										
		32	Sharp Contact	100% recovery									
		33											
		21	10yr 6/4 Moist Firm (ML) low plasticity F Sand and Silt	80% recovery									
23		27											
		27											
		24											
		21	10yr 6/6 Firm saturated graded F Sand with 20% M. Sand	End of Boring 26'									
25		20											
26		20											

COMMENTS: All H₂O and RAD readings were at background. Boring terminated at 26'.

FIGURE A3-2 BOREHOLE/WELL LOG SHEET

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: ZZ51-11-01

WELL LOG

WELL NUMBER: GRSB-15

PAGE / OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11-1-91

INSPECTOR: RICHARD EICHEN

BOREHOLE DEPTH: 24.0 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			Upper .5': LOAMY TOPSOIL, GRASS	
		2		Lower 1': 10yr 2/2 Dry, nonplastic, loose	
		13		Fine to coarse sand, 10% subang	
		23		(Sw) gravel, 10% silt.	75% recovery
	2	19			
		10		10yr 6/4 loose, dry, nonplastic	
		22		Fine to coarse sand, 15% subang	
		32		gravel, trace silt.	
	4	50/1		(Sw)	50% recovery
		34		10yr 6/4 loose, dry, nonplastic	
		50		Fine to coarse sand, 15% subang	
		50/3		(Sw) gravel, trace silt	40% recovery
	6				
		48		10yr 5/6 loose, dry, nonplastic	
		50/4		Fine to coarse sand, 15% subang	
				gravel, trace silt	
	8			(Sw)	50% recovery
		15		10yr 5/4 Dry, soft, nonplastic	
		50/3		Fine and medium sand, 10% coarse sand, 10% subang gravel.	
	10			(Sw)	45% recovery
		32		10yr 5/4 Dry, soft, nonplastic	
		26		Fine and medium sand, 10%	
		36		(Sw) coarse sand, 10% subang/ang gravel.	
	12	17			80% recovery
		15		Upper 1': SAME AS ABOVE	
		13		Lower .5' 10yr 6/2 Damp, soft, nonplastic	
		11		(SP) Fine sand, 20% med sand	65% recovery
	14	17			
		15		10yr 6/3 soft, damp, nonplastic. Fine and med. sand, 10% subangular gravels.	H ₂ O = 5.5 units
		15		(SP) A layer of (tgray) fine sand & silt, .1 ft thick occurs in sample	80% recovery
	16				
		21		10yr 6/4 soft, damp, nonplastic	
		19		Fine and medium sand, trace subangular gravel.	H ₂ O = 0.7 units
		19		(SP)	50% gr
	18	13			35% recovery
		13		10yr 6/3 soft, damp, nonplastic	
		14		Upper 1': 25% med sand, 10% coarse sand	
		23		(SP) Lower 1': Fine sand, trace med & coarse sand, tr. subang gravel	100% recovery
	20	20			
		12		Upper .5': SAME as Lower 1' of Above	
		19		Middle 1': SAME as Upper 1' of Above	
		47		Lower .3': 10yr 6/2 Dry, soft, nonplastic fine	
	22	41		(SP) sand, 10% med sand, 10% coarse sand, 10% subang	80% recovery
		32		10yr 6/3 soft, dry, nonplastic gravel	
		23		Fine sand, trace med & coarse	
		24		(SP) sand, trace gravel. Lower .3' must.	
	24	40			50% recovery

COMMENTS:



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG WRSB-15

WELL NUMBER:

PAGE 2 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 1-1-91

INSPECTOR: Richard E. Ellison

BOREHOLE DEPTH: 74.0 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: 11A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	24		20	10y 5/2 SOFT, moist, non plastic	
			22		
			15	Fine to coarse sand, 15% submy	
			20	gravel. orange staining in gravel	
			(SW)	area.	
	26		20	10y 5/2 SOFT, moist, non plastic	50% recovery
			24		
			18	Fine to coarse sand, 15%	
			20	(SW) submy gravel. orange staining in	
			(SW)	gravel area.	
	28		20	10y 5/2 SOFT, moist, non plastic	50% recovery
			27		
			(SW)	Fine to coarse sand, 15% submy	
			(SW)	gravel. orange staining in gravel	
	30		45		65% recovery
			49	(SP) gravel. orange staining in gravel	
				No sample, spoon broken	
	32				no sample
			8	2.5y - 5/4 SATURATED, SOFT, non plastic	
			10		
			14	FINE SAND, trace medium & coarse	
	34		13	(SP) SAND (<10% total).	50% recovery
	36				
	38				
	40				
	42				
	44				
	46				
	48				

COMMENTS:

Boring terminated at 34'

No fill encountered

ALL RAD READINGS @ background level.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-C1

WELL LOG

WELL NUMBER: 145B-1
PAGE 1 OF 1 GR5B-16

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-25-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 25 FT. BELOW GROUND SURFACE

WELL DEPTH: 24.5 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 LB

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW-18 installed See well log for well construction details.	0			Upper .3' 10YR 6/4 Fine and med sand, trace coarse sand. Dry, nonplastic, loose	
			3	(SP)	
			5	Lower .7' 10YR 3/3 Dry, nonplastic, loose silt and fine sand, trace med-coarse sand, trace organic matter.	50% recovery
	2		4	(SM-ML)	
			5		
			4		
			3		
	4		3	no recovery, rock in sampler tip	no recovery
			5	10YR 3/2 Fine sand and silt, trace organics	
			2		
			7		
	6		5	(SM-ML)	25% recovery
			6	10YR 5/3 Dry, nonplastic, loose	
			5	Poorly sorted sand, 10% rounded gravel. Upper 2' contained 20% silt.	thru = 2 units in silt layer
	8		7	(SW-SM)	40% recovery
			10		
			9	Upper .4' same as above	
			12	Lower .6' 10YR 5/4 poorly sorted sand, 10% gravel. Dry, nonplastic, loose	
	10		10	(SW)	50% recovery
			11		
			24	10YR 5/4 Dry, nonplastic, loose poorly sorted sand, 10% gravel, .3ft layer of "coal" or "ash".	thru = 2 ppm in "coal" or "ash" layer.
	12		27	(SW)	45% recovery
			11		
			20		
	14		7	10YR 5/3 Dry, nonplastic, loose, poorly sorted sand, 30% silt, 10% subng gravel.	
			11	(SM)	15% recovery
			10		
			19		
	16		12	10YR 6/4 moist, non plastic, soft	
			6	Fine sand, trace(?) silt	
			6	(SW)	50% recovery
	18		8	10YR 6/4 WET-SATURATED, non plastic, soft	thru = .5 units
			8	Fine sand, trace(?) silt, orange mottling evident throughout sample.	80% recovery
			8	(SW)	
	20				
	22				
	24				
				End of boring 25; no split-spoon sample collected	

COMMENTS:

Boring terminated at 18'

Bottom of fill encountered at 10.6'

ALL RAD readings at background levels.

End continuous split-spoon sampling at water-table; 15'



ROY F. WESTON, INC.

CLIENT: ARMA MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: ZZS1-11-01

WELL LOG GRSB-17
WELL NUMBER: RFW-
PAGE 1 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11-6-91

INSPECTOR: RICHARD EICHHOEN

BOREHOLE DEPTH: 32 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 8 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		1	upper .5' : 10YR 3/2 SILTY LOAM, GRASS ROOTS.	
			2		
			5		
			12		
	2		10	LOWER .5' : 10YR 3/4 DRY, LOBE-SOFT, NON (SW-SM) PLASTIC SAND, 20% SILT, 10% FINE ANGULAR GRAVEL.	50% RECOVERY
			30	10YR 4/6 SOFT, DRY, NONPLASTIC FINE AND (600) MEDIUM SAND, 10% COARSE SAND, SW 15% SUBANGULAR GRAVEL.	
			32		
			42		
	4		6	10YR 4/6 SOFT, DRY, NONPLASTIC FINE AND (600) MEDIUM SAND, 10% COARSE SAND, SW 15% GRAVEL.	50% RECOVERY
			24		
			33		
			38		
	6		48	10YR 6/4 DRY, SOFT, NONPLASTIC FINE AND (600) MEDIUM SAND, 10% COARSE SAND, SW 15% GRAVEL.	50% RECOVERY
			42		
			50/4		
	8		28	10YR 6/4 SOFT, DRY, NONPLASTIC FINE AND (600) MEDIUM SAND, 10% COARSE SAND, SW 15% GRAVEL.	50% RECOVERY
			34		
			18		
	10		44	10YR 5/6 DAMP, SOFT, NONPLASTIC FINE AND (600) MEDIUM SAND, 10% COARSE SAND, SW 15% GRAVEL.	65% RECOVERY
			21		
			17		
			18		
	12		26	10YR 5/4 DAMP, SOFT, NONPLASTIC FINE AND (SP) MEDIUM SAND, TRACE COARSE SAND, TRACE SUBANGULAR FINE GRAVEL.	65% RECOVERY
			27		
			16		
			21		
	14		23		
			24		
			17		
			16	NO RECOVERY - STONE IN TIP OF SAMPLER	
	16		21		NO RECOVERY
			10	10YR 5/4 DAMP, SOFT, NONPLASTIC FINE AND (SP) MEDIUM SAND, TRACE COARSE SAND, TRACE SUBANGULAR FINE GRAVEL.	
			20		
			38		
	18		36	10YR 5/4 DAMP, SOFT, NONPLASTIC FINE AND med. (SP) SAND, TRACE COARSE SAND, TRACE SUBANGULAR FINE GRAVEL. .4' THICK FINE SAND LAYER @ 19 FT.	60% RECOVERY
			33		
			26		
	20		50		
			44		
			21	2.5Y 5/4 DAMP, SOFT, NONPLASTIC VERY FINE SAND, THIN (1mm) CROSS-BEDS.	90% RECOVERY
			13		
			14		
	22		15		70% RECOVERY
			20	2.5Y 5/4 DAMP, FIRM, NON PLASTIC VERY FINE SAND, THIN (1mm) CROSS-BEDS.	
			23		
			25		
	24		30		50% RECOVERY

COMMENTS:

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GR50-17

PAGE 2 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11-6-91

INSPECTOR: RICHARD EICHHORN

BOREHOLE DEPTH: 32 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DANEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	24		PUSHED by augers	2.5y 5/4 Damp, Firm, non plastic VERY FINE SAND, thin (1mm) Cross beds.	
	26				60% recovery
	28				
	30				
	32				
	34				
	36				
	38				
	40				
	42				
	44				
	46				
	48				
		21		2.5y 5/4 WET, FIRM, MODERATE PLASTICITY	
		13		(CL) Clay with 40% SILT, 0.2' INTERBED	
		16		of clay w/ 25% SILT & 25% SAND (FINE)	
		19		@ TOP & BOTTOM OF sample.	70% recovery
		24		upper 8': 2.5y 5/4 SATURATED, FIRM, MOD. PLASTIC	
		36		(CL) clay with 40% SILT.	5% subang. gravel.
		23		LOWER 1'; 10yr 4/4 WET, SOFT, NON PLASTIC MED	
		24		(SW) SAND w/ 20% fine sand, 10% coarse sand.	90% recovery
		7		2.5y 4/4 SATURATED, SOFT, NON PLASTIC	
		14		(SP) FINE and MED. sand, trace	
		18		subang. gravel.	60% recovery
		24			

COMMENTS:

BORING TERMINATED at 32'.

ALL HNU and RAD READINGS WERE AT BACKGROUND LEVELS.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 135B-1/GRSB-18

PAGE / OF 5

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-26-91

INSPECTOR: STEVE LAWLUT

BOREHOLE DEPTH: 108' FT. BELOW GROUND SURFACE

WELL DEPTH: 98.4 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW-19 A installed See well log for well construction details.	0		2	10yr 3/2 MOIST, Firm, LOW PLASTICITY	
			3	Fine Sand and SILT (TOPSOIL)	
			2		
			3	(SM-PT)	45% recovery
	2		3	10yr 6/6 SOFT, moist, nonplastic	
			4	med to coarse sand, 10% subangular gravel.	
			17	(SP)	50% recovery
			19		
	4		9	10yr 6/4 Dry, soft, nonplastic	
			28	med to coarse sand, 20% subangular gravel.	
			34	(SP)	70% recovery
			40		
	6		38	10yr 6/4 Firm, moist, nonplastic	
			53	medium to coarse sand, 20% subangular gravel.	
			47	(SP)	80% recovery
			64	med to coarse sand, 10% subangular gravel.	
	8		14	10yr 6/4 Firm, moist, nonplastic	
			35	(SW)	90% recovery
			46		
			54		
	10		17	10yr 6/4 SOFT, nonplastic, dry	
			29	medium to coarse sand, 20% subangular gravel.	
			27	(SP)	85% recovery
			38		
	12		23	10yr 6/3 LOOSE, nonplastic, dry	
			25	coarse sand and gravel, 20% med sand	
			13	(SP)	90% recovery
			15		
	14		9	10yr 6/3 SOFT, moist, nonplastic	
			11	medium to coarse sand	
			17	(SP)	80% recovery
			21		
	16		10	10yr 6/3 SOFT, moist, nonplastic	
			23	med - coarse sand, 10% rounded gravel.	
			37	(SP)	75% recovery
			48		
	18		17	10yr 6/6 LOOSE, moist nonplastic	
			24	med (20%) - coarse sand and gravel (subangular)	
			17	(SP)	100% recovery
			27		
	20		11	10yr 6/4 MOIST, nonplastic, soft	
			13	medium sand, 20% coarse sand.	
			37	(SP)	80% recovery
			44		
	22		15	10yr 6/3 SOFT, moist, nonplastic	
			15	medium to coarse sand, 10% subangular gravel	
			27	(SP)	90% recovery
			19		
	24				

COMMENTS:

0-34' 10-26-91 Drill with 4 1/2" Augers Davey Kent rig
 34-55' 11-9-91 Drill with 10 1/2 augers CMIE rig
 55-108' 11-24-11-25-91 Drill with Barber air-rotary rig.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 13SB-1
GRSB-18

PAGE 2 OF 5

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-26-91

INSPECTOR: STEVE LAWLER

BOREHOLE DEPTH: 108' FT. BELOW GROUND SURFACE

WELL DEPTH: 98.4 FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL

GROUNDWATER ELEVATION: FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DANEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
MW19A installed See well log for well construction details.	24		12	10yr 6/4 SOFT, moist, nonplastic	
			13	MEDIUM SAND, 10% COARSE SAND.	
			18		
			15	(SP)	
	26		15	upper 1': SOFT, moist, nonplastic, 10yr 5/3	75% recovery
			37	(SP) MED-COARSE SAND	
			35	lower 1': 10yr 5/3 FIRM, dry, nonplastic	100% recovery
	28		38	(SW) FINE-COARSE SAND, 10% subangular gravel	
			48	10yr 5/3 FIRM, dry, nonplastic	
			50	MED-COARSE SAND, 10% subangular gravel.	
			44		
	30		55	(SP)	60% recovery
			16	10yr 5/4 FIRM, SATURATED, nonplastic	
			14	FINE-MEDIUM-COARSE SAND, 20% subangular gravel.	
			14		
	32		12	(SW)	60% recovery
			15	10yr 5/3 FIRM, SATURATED, high plasticity	
			15	FINE SAND, SILT, CLAY	
			22		
	34		22	(ML-CL)	95% recovery
	35		23	10yr 4/4 Saturated, firm low plasticity	
	36		46	Fine Sand with 20% silt	20% recovery
			59	and 20% angular Gravel, sorted.	
	37		25	(SM)	
	38				
	40				
			10	10yr 4/4 Saturated nonplastic, firm	
			10	uniform F to M Sand.	
			20		
	42		26	(SW)	100% recovery
	44				
	46				
	48				

COMMENTS:

All HNU and PAS readings at background levels
NO FILL DEFINED

ROY F. WESTON, INC. CLIENT: Army Materials Testing Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-1353-1 PAGE 4 OF 5									
DRILLING CONTRACTOR: R & R International, Inc. DRILLING DATES: 11/24 - 11/25/91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 108. FT. BELOW GROUND SURFACE WELL DEPTH: 98.4 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRILL RIG</td> <td>Davey Kent</td> </tr> <tr> <td>SAMPLER</td> <td>2 3/4" split spoon</td> </tr> <tr> <td>HAMMER WEIGHT</td> <td>200 lb</td> </tr> <tr> <td>LENGTH OF FALL</td> <td>18"</td> </tr> </table>		DRILL RIG	Davey Kent	SAMPLER	2 3/4" split spoon	HAMMER WEIGHT	200 lb	LENGTH OF FALL	18"
DRILL RIG	Davey Kent												
SAMPLER	2 3/4" split spoon												
HAMMER WEIGHT	200 lb												
LENGTH OF FALL	18"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
MW1C A installed	0												
See well log for well construction details.	73		50/3"	Loose, saturated, non plastic poorly sorted F. Sand and Silt with 20% angular coarse Sand and angular gravel 10yr 4/4 (till).	100% recovery								
	80	5											
	88		60/40/0	Saturated, low plasticity, poorly sorted firm Sand and Silt with 20% angular gravel. (till) 10yr 5/1	20% recovery								
	91	48											
	98		60/3"	Till Bedrock (weathered) 10yr 5/1 Weathered Rock									
	100	25											
COMMENTS: All VOC and gamma radiation at background levels													

ROY F. WESTON, INC. CLIENT: Army Materials Testing Laboratory LOCATION: Watertown, MA WORK ORDER NUMBER: 2281-11-01				WELL LOG WELL NUMBER: RFW-1353-1 PAGE 5 OF 5									
DRILLING CONTRACTOR: R & R International, Inc. DRILLING DATES: 11/24 - 11/25/91 INSPECTOR: Stephen Lawlor BOREHOLE DEPTH: 106.4 FT. BELOW GROUND SURFACE WELL DEPTH: 98.4 FT. BELOW TOP OF PVC CASING ELEVATION OF TOP OF PVC WELL CASING: FT. AMSL GROUNDWATER ELEVATION: FT. AMSL				DRILLING EQUIPMENT <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">DRILL RIG</td> <td style="padding: 2px;">Dacey Kent</td> </tr> <tr> <td style="padding: 2px;">SAMPLER</td> <td style="padding: 2px;">3/4" split spoon</td> </tr> <tr> <td style="padding: 2px;">HAMMER WEIGHT</td> <td style="padding: 2px;">200 lb</td> </tr> <tr> <td style="padding: 2px;">LENGTH OF FALL</td> <td style="padding: 2px;">18"</td> </tr> </table>		DRILL RIG	Dacey Kent	SAMPLER	3/4" split spoon	HAMMER WEIGHT	200 lb	LENGTH OF FALL	18"
DRILL RIG	Dacey Kent												
SAMPLER	3/4" split spoon												
HAMMER WEIGHT	200 lb												
LENGTH OF FALL	18"												
WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES								
MW 19A installed See well log for well construction details.	100			10 x 5 S/I Weathered Rock									
		106				110 feet End of Boring							
	110												

COMMENTS: All VOC and gamma radiation at background levels.



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GR5B-19

PAGE / OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-25-91

INSPECTOR: Richard Eichhorn

BOREHOLE DEPTH: 11 FT. BELOW GROUND SURFACE

WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL

GROUNDWATER ELEVATION: N/A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			10yr 2/2 - 4/2 loose, dry, nonplastic	
			2	SILT and fine SAND, 10% med. clay	
			6	(ML) coarse sand, with med coarse trace gravel, trace organics.	
			9		40% recovery
			11		
	2		11	upper .3' same as above	
			10	lower .9' 10yr 5/3 clay, loose, nonplastic	
			8	(ML) SILT, 15% poorly sorted fine to coarse sand, middle 3" w/ 20% coal	60% recovery
			50/3		
			31	upper .7' same as lower .9' of above	
			40	lower .7' 10yr 6/2 - 7/1 loose, clay, non-plastic poorly sorted sand and	
			18	(SW) subangular gravel	70% recovery
			10		
			12	10yr 2/1 moist, firm, med plasticity	100% ^{29E} penetration
			12	SILT and CLAY, trace organics	
			5	(CL-OH)	35% recovery
			7		
			8	10yr 2/1 WET, firm, high plasticity	
			4	CLAY, 30% SILT	
			5	(CH)	70% recovery
			10		
	10				
	11				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 11'
Bottom of fill encountered at 5'
ALL RAD readings at background levels.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 155B-1
GRSB-20

PAGE 1 OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-26-91

INSPECTOR: TIM WARR/STEVE LAWLER

BOREHOLE DEPTH: 10 FT. BELOW GROUND SURFACE

WELL DEPTH: N/A FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: N/A FT. AMSL

GROUNDWATER ELEVATION: N/A FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		4	10yr 5/5 SOFT, Dry, LOW PLASTICITY	
			3	Fine Sand, 10% Silt, 10% subangular gravel	
			4	(ST)	
	2		5		50% RECOVERY
			5	10yr 3/2 SOFT, moist, low-mod PLASTICITY	
			9	Silt, 100% Fine Sand, 10% subangular gravel.	
	4		14		50% recovery
			15		
			15		
			11		
	6		7	NO RECOVERY	NO RECOVERY
			6		
			3		
			2		
			3	NO RECOVERY	
	8		5		NO RECOVERY
			3	10yr 4/2 SOFT-FIRM, SATURATED, LOW PLASTICITY	
			5	Fine Sand, 10% Silt	
	10		6		75% recovery
				End of boring 10'	
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 10'

All HNU and RAD readings at background levels
NO FILL ENCOUNTERED



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-21

PAGE 1 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 11-6-91 through 11-7-91

INSPECTOR: RICHARD EICHORN

BOREHOLE DEPTH: 26 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0		3	10YR 3/4 DAMP, SOFT, NONPLASTIC SILTY LOAM, TRACE FINE SAND.	
			4		
			4	(SP-DE)	
			6	(OL-SP)	65% RECOVERY
	2		5	UPPER 0.5': FINE 4/6 DRY, NONPLASTIC, SOFT SILTY LOAM, TRACE FINE SAND.	
			7	(OL-SP)	
			20	LOWER 0.4': 10YR 6/3 FINE AND MEDIUM SAND, 10% COARSE SAND, 20% SUBANG-ANY GRAVEL	45% RECOVERY
	4		28	(SW)	
			29	10YR 6/3 FINE AND MEDIUM SAND, 10% COARSE SAND, 20% SUBANG-ANY GRAVEL	
			34	(SW)	
			30		
	6		34		60% RECOVERY
			50/3		
				NO RECOVERY, SPLIT SPOON REFUSAL	
	8				NO RECOVERY
			35	10YR 6/3 FINE AND MEDIUM SAND, 10% COARSE SAND, 20% SUBANG-ANGULAR GRAVEL	
			45	(SW)	
			50/2		50% RECOVERY
	10		22	10YR 6/4 DRY, SOFT, NONPLASTIC MEDIUM SAND, 10% COARSE SAND, 10% SUBANG-ANY GRAVEL	
			47	(SP)	
			47		
	12		38		50% RECOVERY
			24	10YR 6/4 DRY, SOFT, NONPLASTIC MEDIUM SAND, 10% COARSE SAND, 10% SUBANG-ANY GRAVEL	
			38	(SP)	
			34		
	14		33		50% RECOVERY
			18	UPPER 1.2': 10YR 6/3 DRY, LOOSE, NONPLASTIC MED. & FINE SAND, 20% COARSE SAND, 20% SUBANG-ANY GRAVEL. SHARP BREAK	
			21	(SW)	
			19		
	16		16	LOWER 0.2' 10YR 7/2 DRY, LOOSE, NONPLASTIC FINE SAND	70% RECOVERY
			14		
			28	10YR 7/2 - 10YR 6/2 SOFT/LOOSE, DRY, NONPLASTIC INTERBEDDED FINE SAND AND FINE-MED SAND, TRACE COARSE SAND & SUBANG GRAVEL. BEDS 0.2 - 0.6' THICK.	
			47	(SP)	
	18		19		55% RECOVERY
			24	10YR 5/6 - 10YR 6/4 DRY, SOFT, NONPLASTIC. INTERBEDDED FINE SAND AND FINE-MED SAND, TRACE COARSE SAND & SUBANG GRAVEL. BEDS 0.2 - 0.6' THICK.	
			34	(SP)	
			33		
	20		23		75% RECOVERY
			13	10YR 7/2 FINE DAMP SOFT, NONPLASTIC LOOSE, DRY	
			14	(SP)	
			16		
	22		19	FINE SAND, TRACE ROUNDED GRAVEL, 0.2' THICK INTERBEDS OF VERY FINE SAND.	75% RECOVERY
			34		
			22	10YR 7/2 DAMP, SOFT, NONPLASTIC FINE SAND, TRACE ROUNDED GRAVEL	
			16	(SP)	
	24		23	thin (1mm) beds of very fine sand.	75% RECOVERY

COMMENTS:



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: 6RSB-21

PAGE 2 OF 2

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES:

INSPECTOR:

BOREHOLE DEPTH: 26 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	24		PUSHED WITH AUGERS	10yr 7/2 SATURATED, SOFT, NONPLASTIC.	
				Fine sand, trace rounded gravel, thin (1mm) beds of very fine sand.	
	26			(SP)	85% recovery
	28				
	30				
	32				
	34				
	36				
	38				
	40				
	42				
	44				
	46				
	48				

COMMENTS:

BORING TERMINATED @ 26'.

ALL HNU & RAD readings at background levels.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GR5B-22

PAGE / OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-28-91

INSPECTOR: STEVE LAWLER

BOREHOLE DEPTH: 7 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			10yr 5/3 SOFT, DRY, LOW PLASTICITY	
			5	SILT AND FINE SAND (TOPSOIL)	
			7		
			7		
	2		5	(SM)	70% RECOVERY
			4		
			4		
			3	NO RECOVERY	
			8		
	4		2	5yr 3/2 FIRM, SATURATED, HIGH PLASTICITY	NO RECOVERY
			1	SILT AND CLAY	
			1		100% RECOVERY
	6		1	(SAMPLE INTERVAL @ 4-7', sample collected @ 4')	
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated @ 7'

ALL HNU and RAD readings at background levels

NO FILL DEFINED



ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-C1

WELL LOG

WELL NUMBER: GRSB-23

PAGE / OF 1

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10/25/91

INSPECTOR: RICHARD EICHORN

BOREHOLE DEPTH: 6' FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			Upper .4' LOAMY TOPSOIL, GRASS ROOTS.	
			6	(SM-PT)	
			11	Lower .35' 10yr. 3/3 Dry, nonplastic, loose	
			9	SILT, 20% poorly sorted sand, trace	
			6	(ML) gravel, 10% wood fragments.	40% recovery
	2		6	10yr 2/1 Dry, nonplastic, loose	
			14	SILT, 30% fine-coarse sand, trace	
			12	(ML) submg. gravel. METAL ARTIFACT in	
			9	sample	25% recovery
	4		10	10yr 2/1 WET, nonplastic, loose	
			8	Fine-med sand, trace coarse	
			8	sand and submg. gravel,	
			7	(SM) wood fragments	60% recovery
	6				
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated @ 6'
Bottom of Fill not encountered
All HWS & RAS readings at background level.

ROY F. WESTON, INC.

CLIENT: ARMY MATERIAL TECHNOLOGY LABORATORY

LOCATION: WATERTOWN, MA

WORK ORDER NUMBER: 2281-11-01

WELL LOG

WELL NUMBER: GRSB-24

PAGE / OF /

DRILLING CONTRACTOR: R & R INTERNATIONAL, INC.

DRILLING DATES: 10-28-91

INSPECTOR: STEVE LAWLER

BOREHOLE DEPTH: 14 FT. BELOW GROUND SURFACE

WELL DEPTH: NA FT. BELOW TOP OF PVC CASING

ELEVATION OF TOP OF PVC WELL CASING: NA FT. AMSL

GROUNDWATER ELEVATION: NA FT. AMSL

DRILLING EQUIPMENT

DRILL RIG: DAVEY KENT

SAMPLER: 1 3/8" SPLIT SPOON

HAMMER WEIGHT: 140 lb

LENGTH OF FALL: 30"

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NUMBER	BLOWS PER 6 INCHES	CLASSIFICATION	NOTES
NO WELL INSTALLED	0			0-1.5' no sample, drilled through 0.7' asphalt & .9' granite slab.	
	2				
		21		10yr 4/2 Firm, moist, low plasticity	
		20		Fine-med sand and silt, 10%	
		17		(SP) angular gravel. (fill)	
	4	46			80% recovery
		65		10yr 5/2 loose, dry, non-low plasticity,	
		31/2		(SP) fine sand (possible fill)	
	6	50/2			50% recovery
		44		upper .5' 10yr 5/2 loose, moist, nonplastic	
		31		(SP) fine sand, trace med sand	
		12		lower .5' 10yr 5/6' loose, moist, low plasticity	
	8	18		(SM) fine-coarse sand and silt	55% recovery
		6		upper 1' 10yr 5/6 soft, moist, low plastic	
		1		(SM) fine-coarse sand and silt	
		2		lower 1' 10yr 3/3 firm, moist, high plastic	
	10	2		(PT) silt w/ organics. (PEAT)	70% recovery
		1		10yr 3/3 firm, moist-saturated, high	
		1		plasticity silt w/ high organic	
		1		(PT) content. sample becomes saturated	
	12	1		at 11.5'	70% recovery
		1		10yr 3/3 firm, moist-saturated, high plastic	
		2		silt w/ high organic content	
	14	1		(PT)	100% recovery
	16				
	18				
	20				
	22				
	24				

COMMENTS:

Boring terminated at 14'

ALL HNU & RAD readings at background levels.

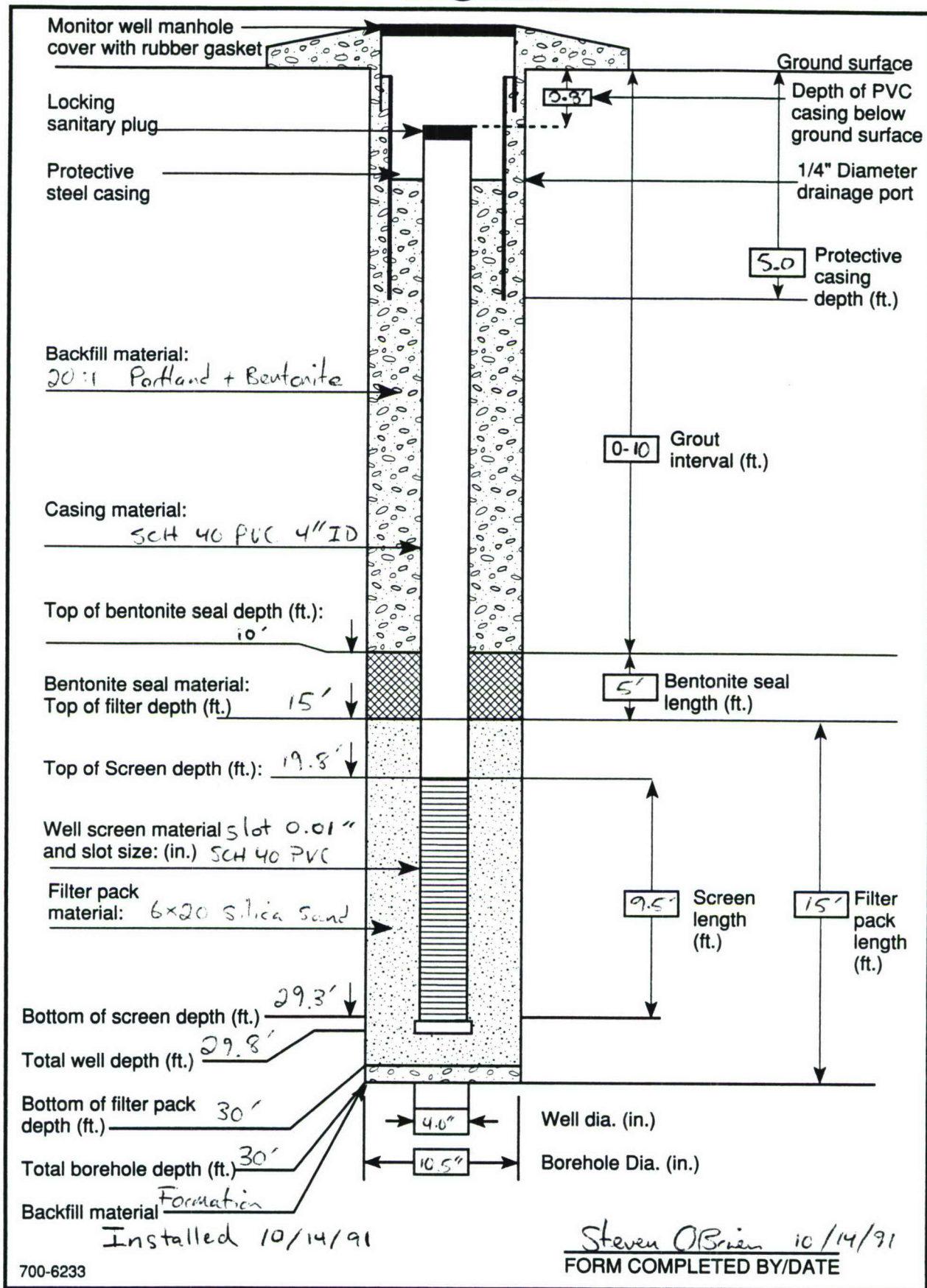
Fill encountered to approx. 4-6 feet.

Appendix B

Well Completion

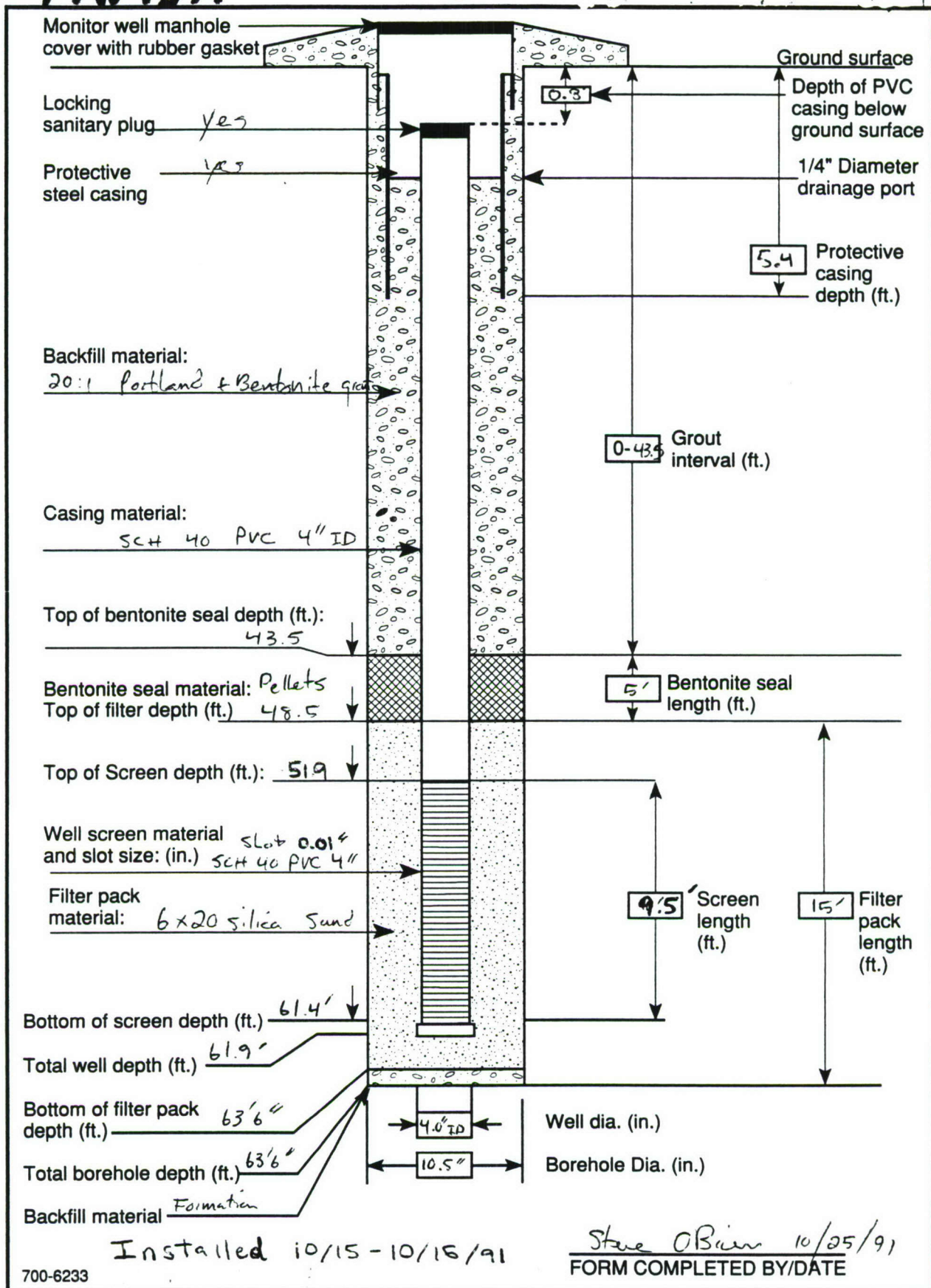
Information Forms

MW-15



WELL COMPLETION INFORMATION

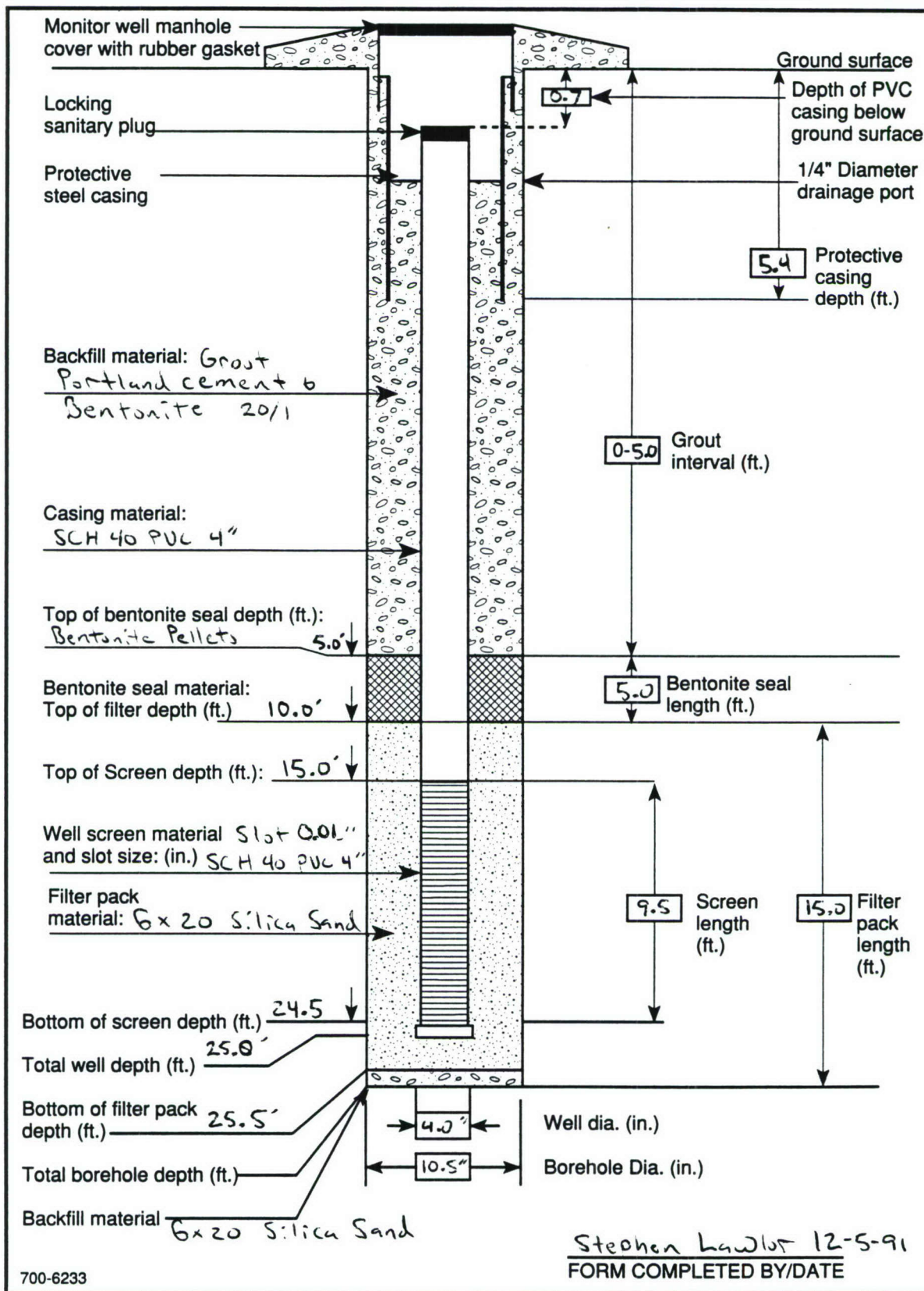
MW 15A



WELL COMPLETION INFORMATION

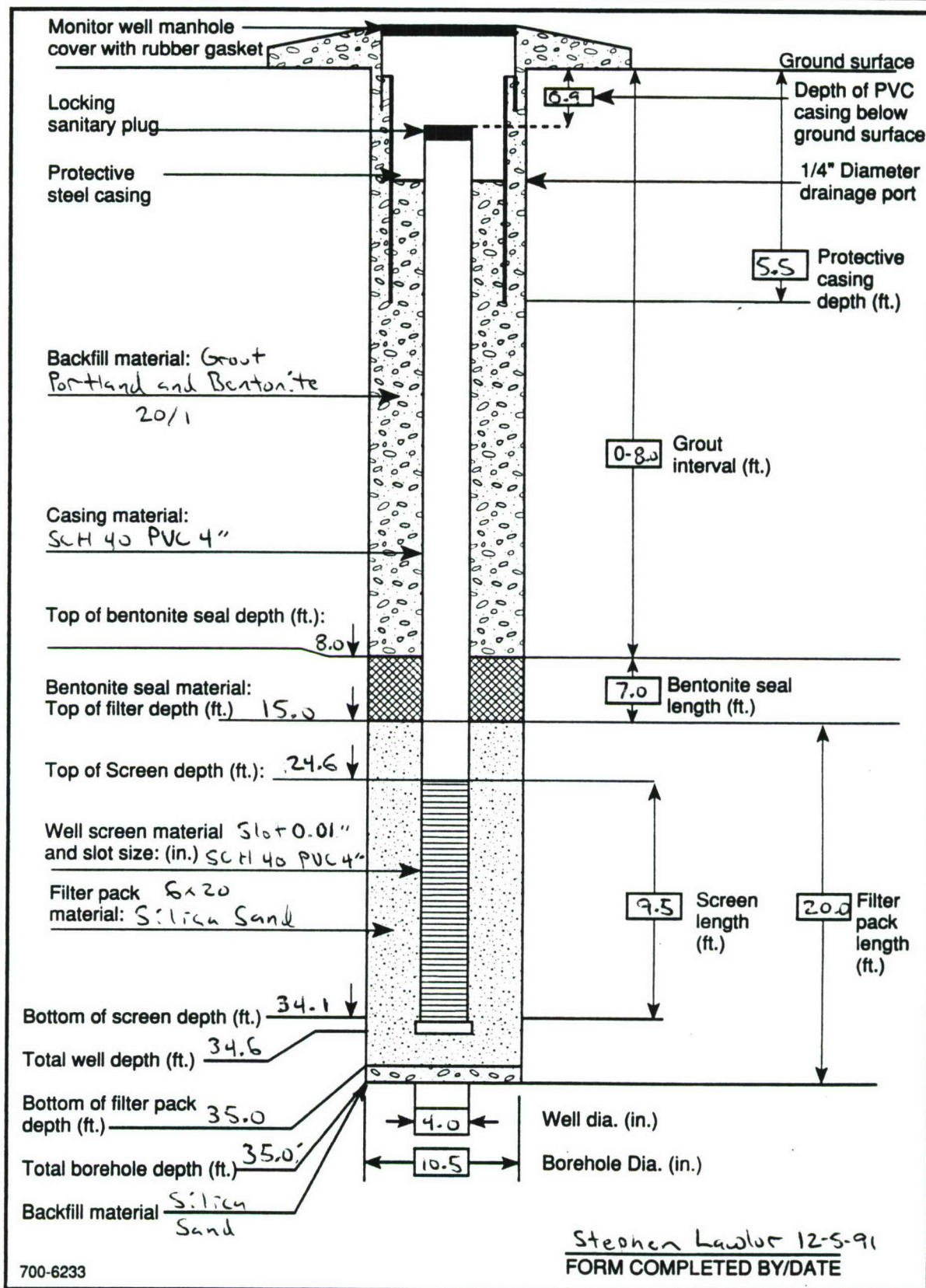
WELL DESIGNATION: MW 16
LOCATION: North of site
COMMENTS: Background well

INSTALLATION START DATE: 10-30-91
INSTALLATION COMPLETION DATE: 10-30-91



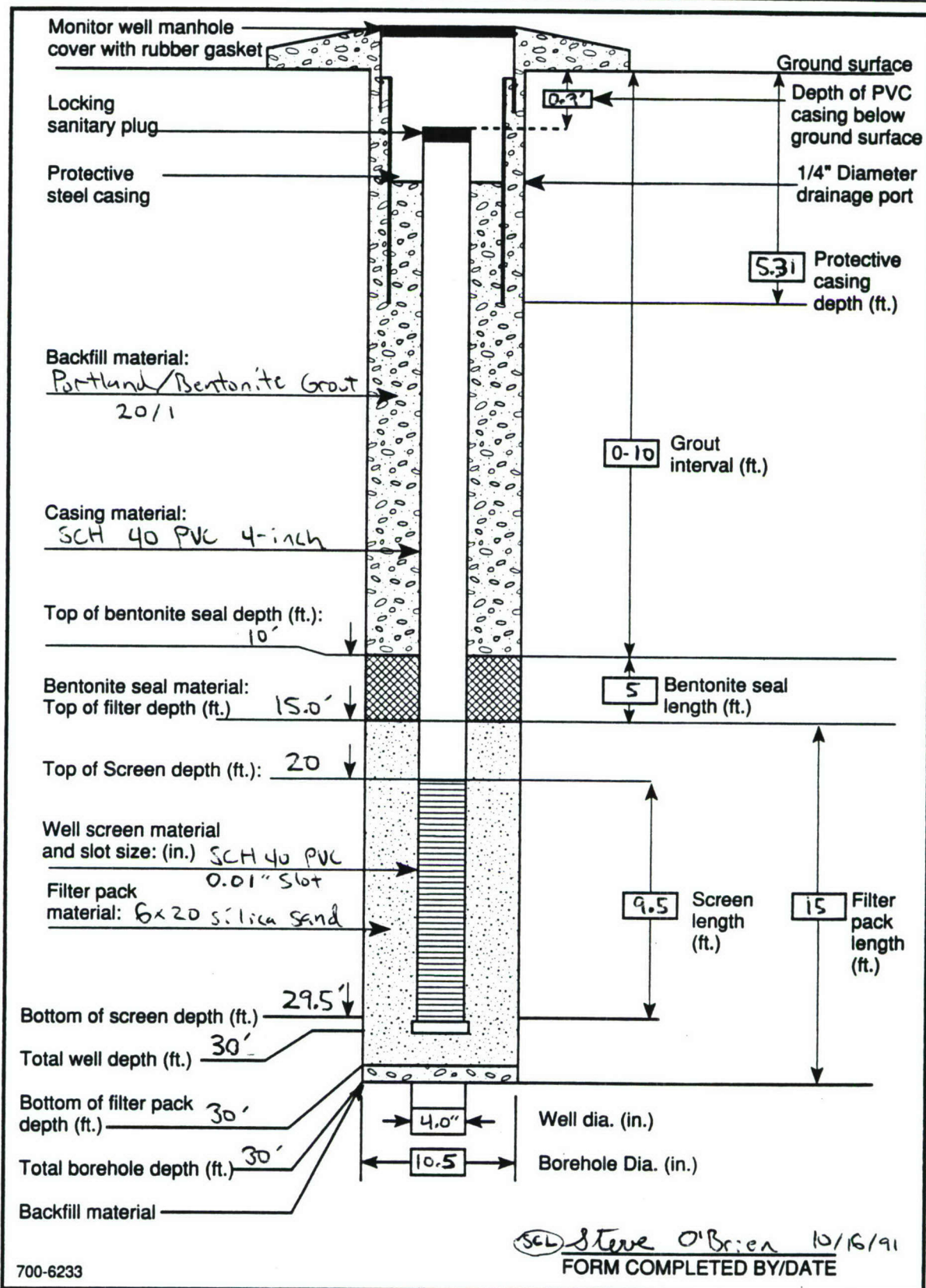
WELL COMPLETION INFORMATION

WELL DESIGNATION: MW 16A INSTALLATION START DATE: 11-6-91
 LOCATION: North of Site INSTALLATION COMPLETION DATE: 11-6-91
 COMMENTS: Background well.



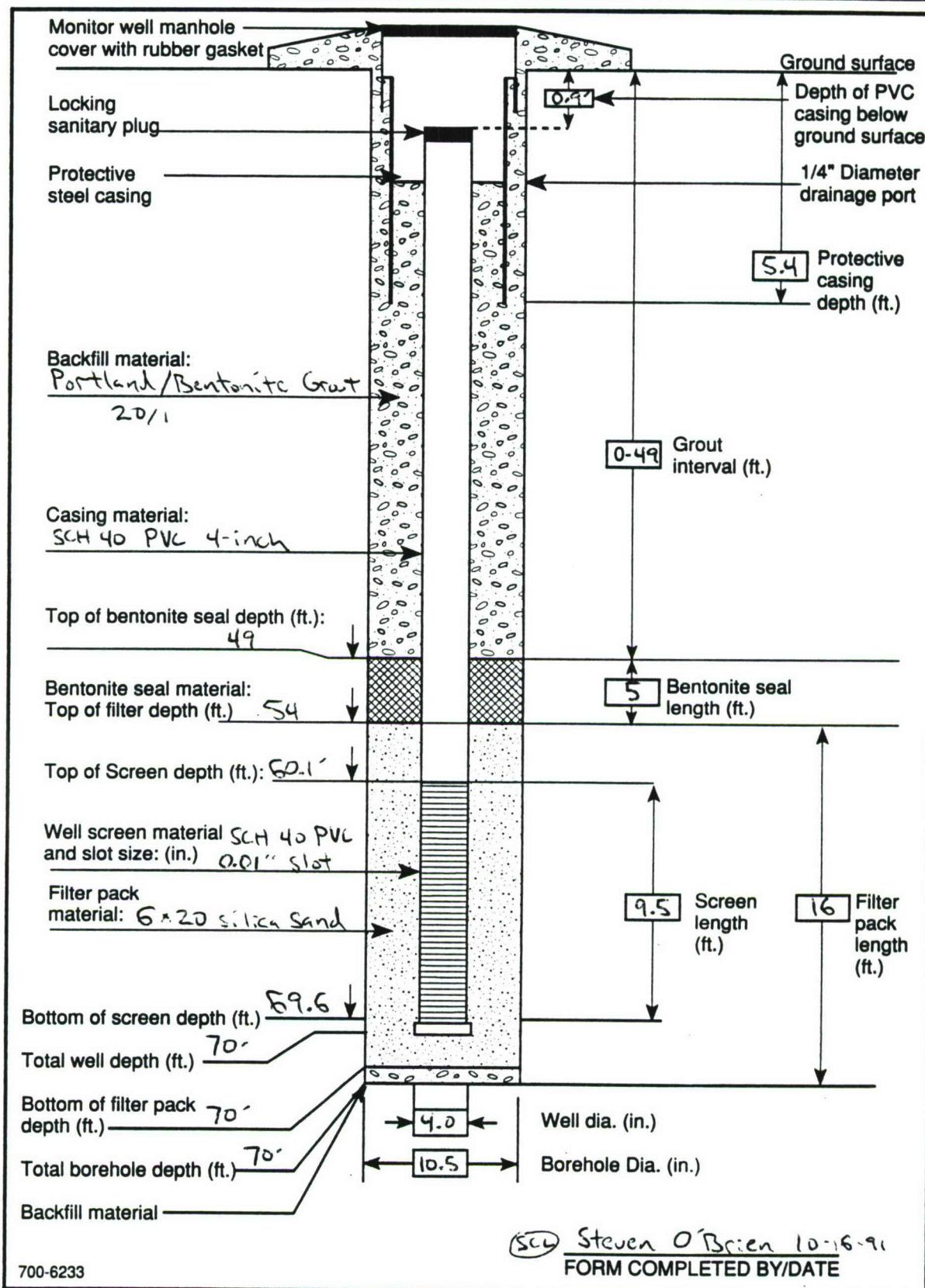
WELL COMPLETION INFORMATION

WELL DESIGNATION: MW-17 (06SB-5) INSTALLATION START DATE: 10/12/91
 LOCATION: Downdrop of Bldg 100 INSTALLATION COMPLETION DATE: 10/12/91
 COMMENTS: _____



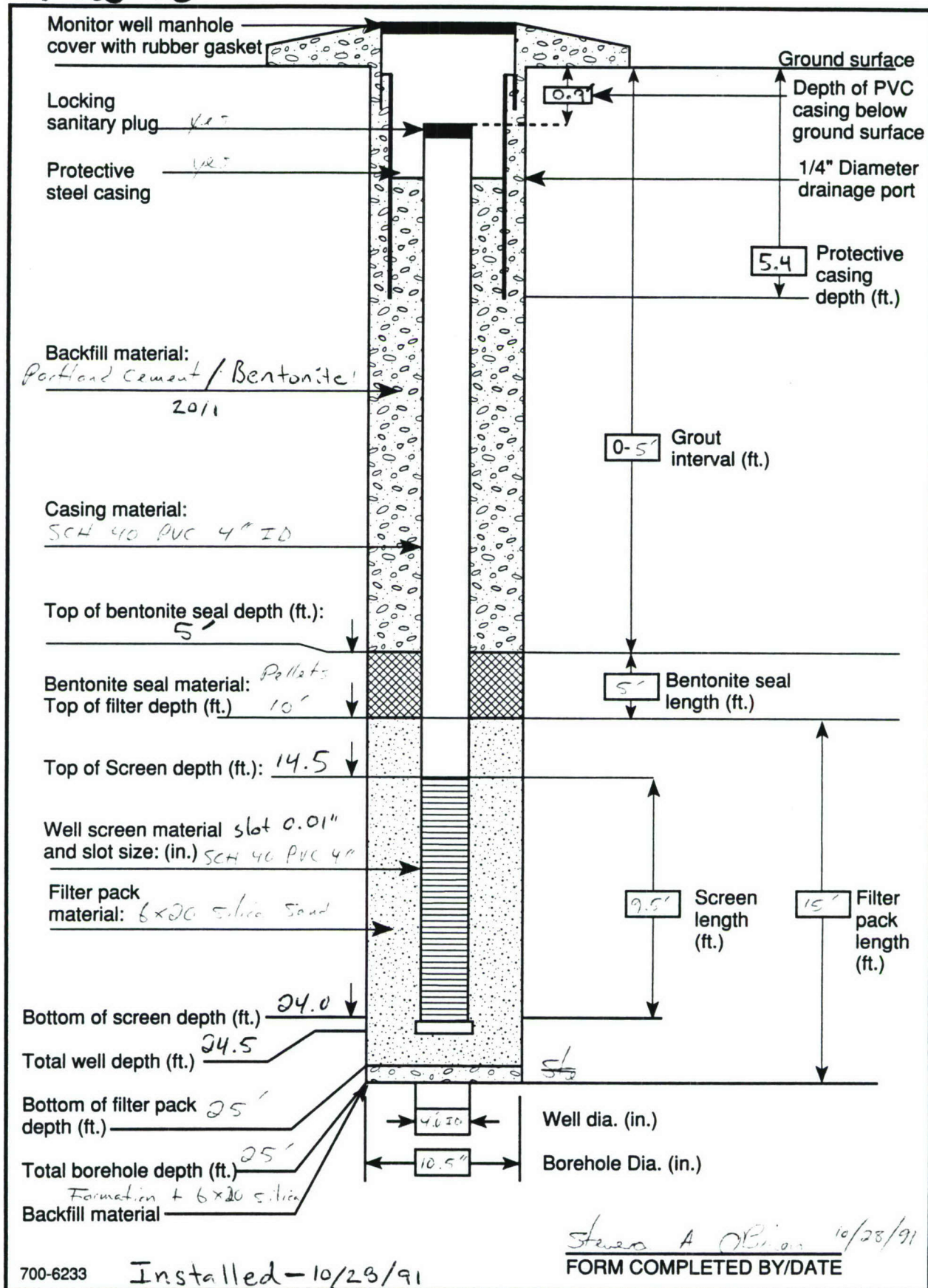
WELL COMPLETION INFORMATION

WELL DESIGNATION: MW-17A INSTALLATION START DATE: 10/11/91
 LOCATION: Downslope of bldg 311 INSTALLATION COMPLETION DATE: 10/11/91
 COMMENTS: _____



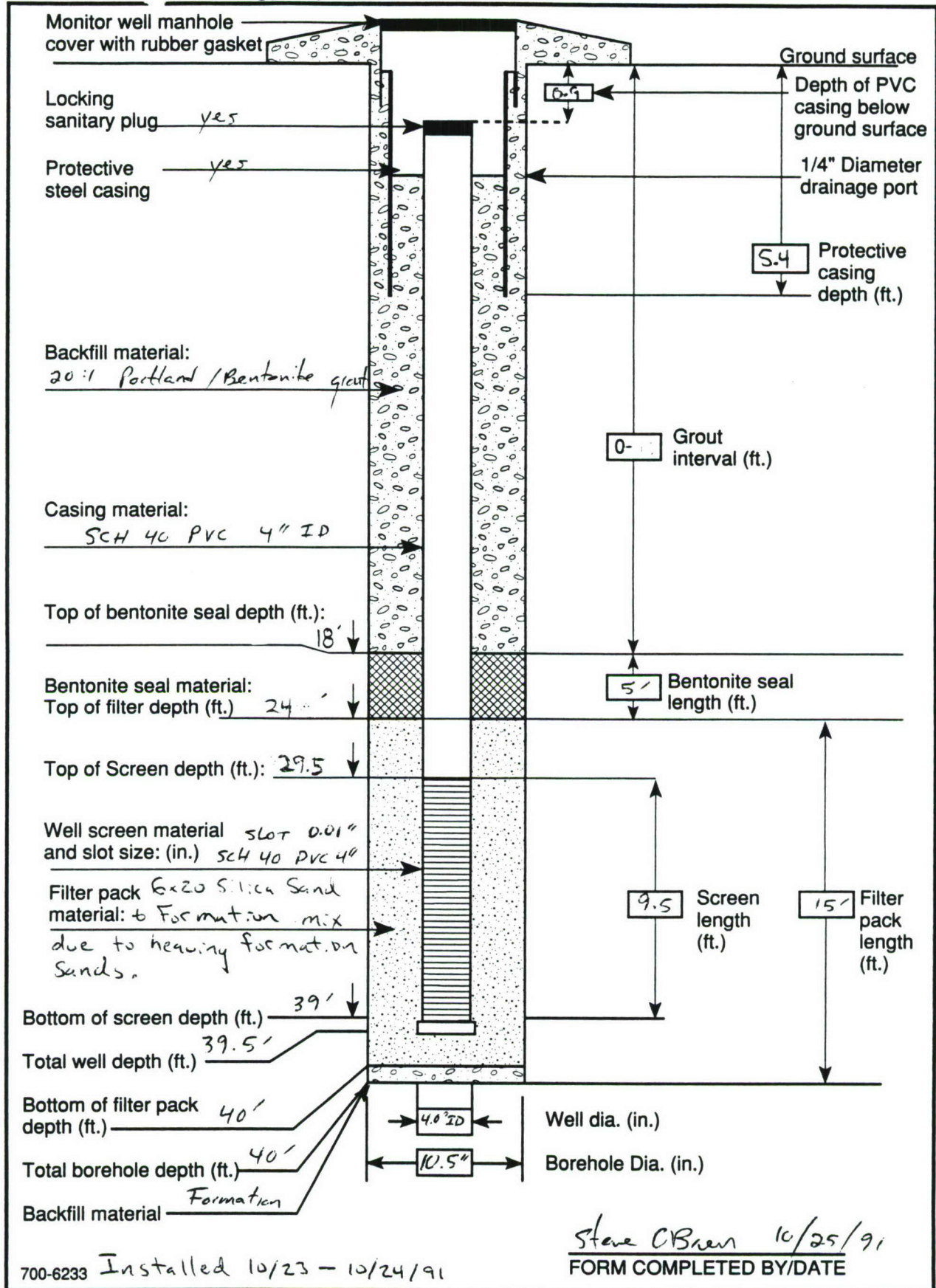
WELL COMPLETION INFORMATION

MW-18



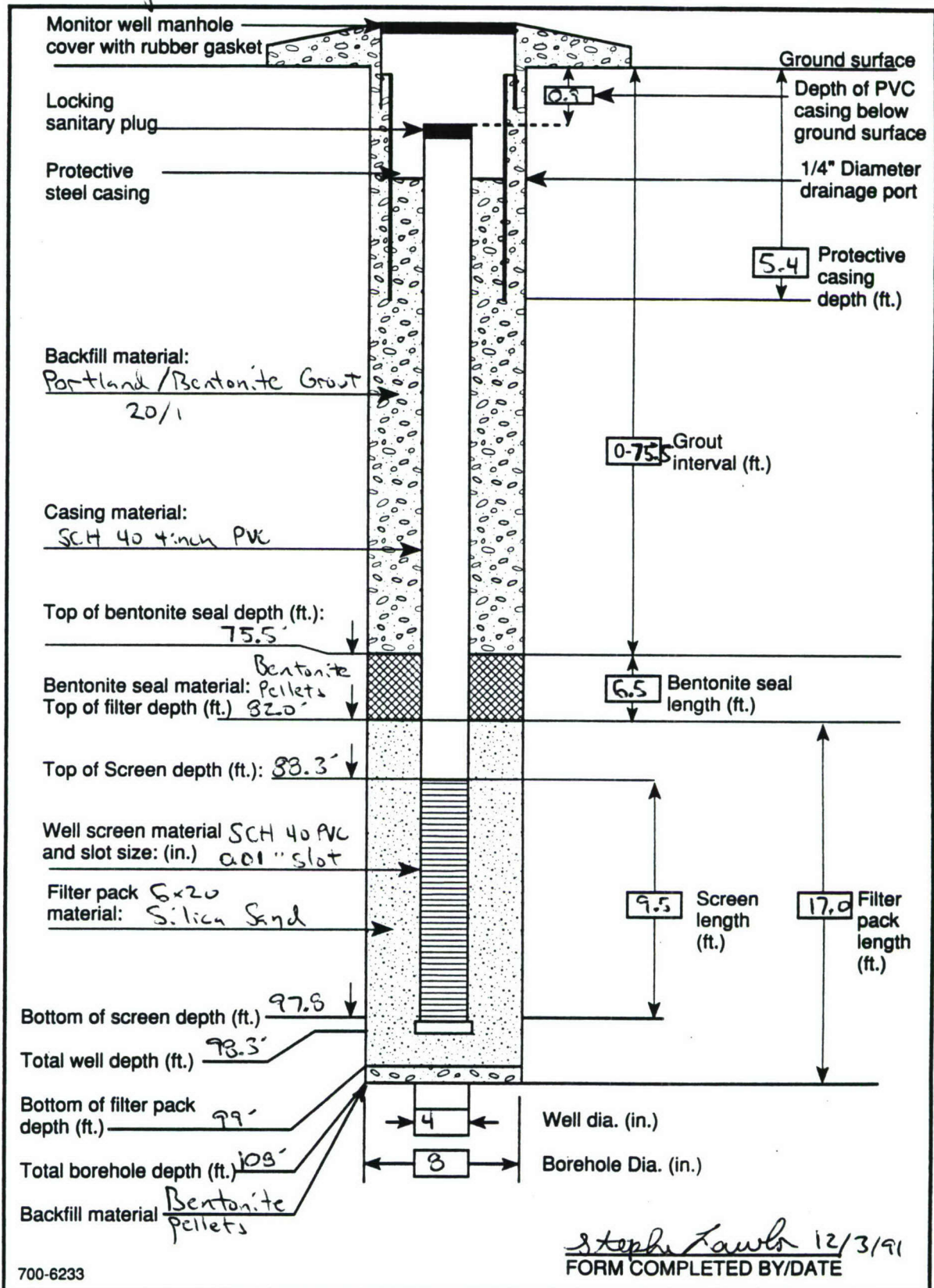
WELL COMPLETION INFORMATION

MW-19



WELL COMPLETION INFORMATION

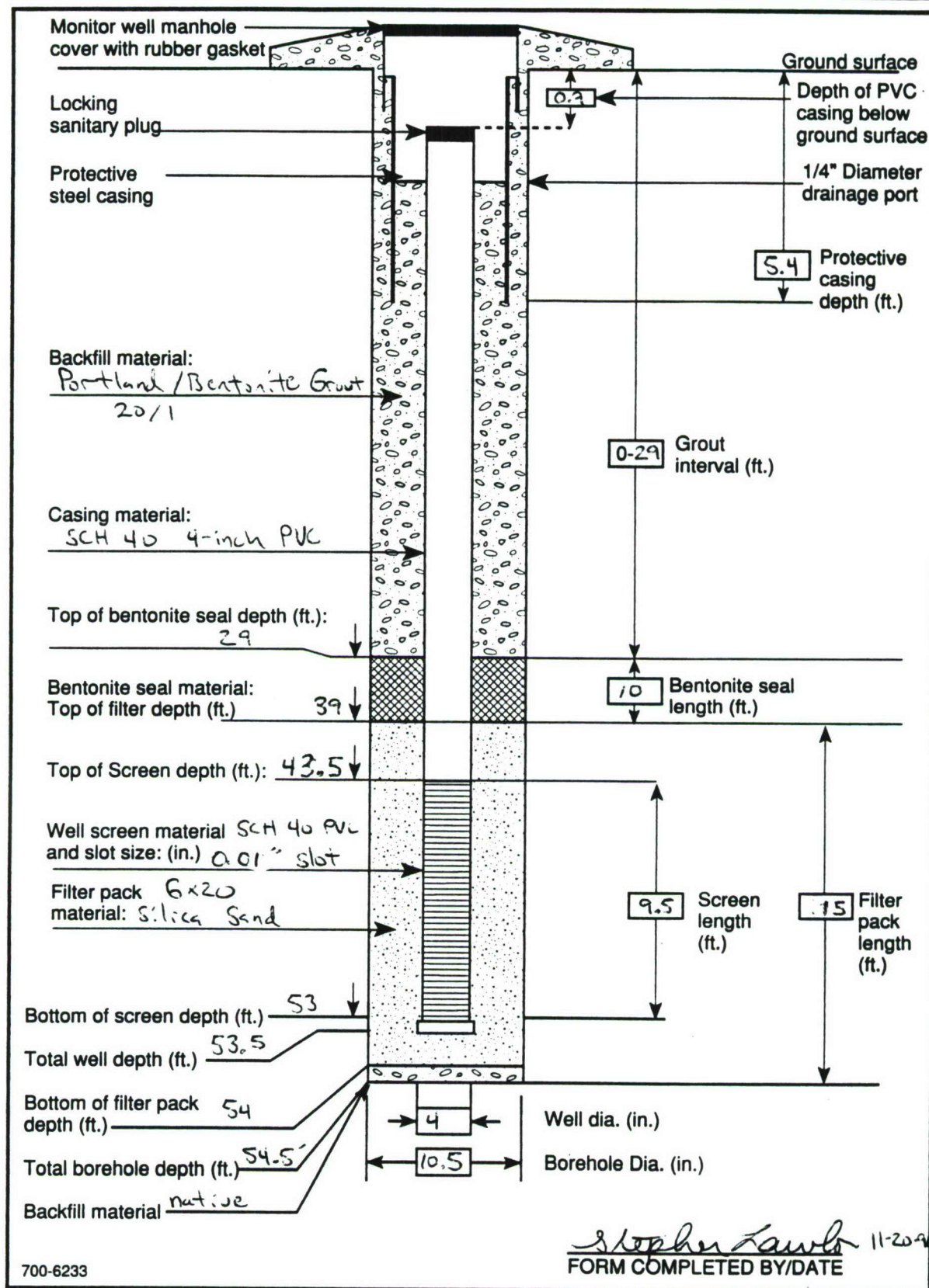
WELL DESIGNATION: MW 19 A INSTALLATION START DATE: 11-27-91
 LOCATION: _____ INSTALLATION COMPLETION DATE: 12-2-91
 COMMENTS: MW 19 A installed using Barber air-rotary drill
Pipe Installed at till/bedrock interface.



WELL COMPLETION INFORMATION

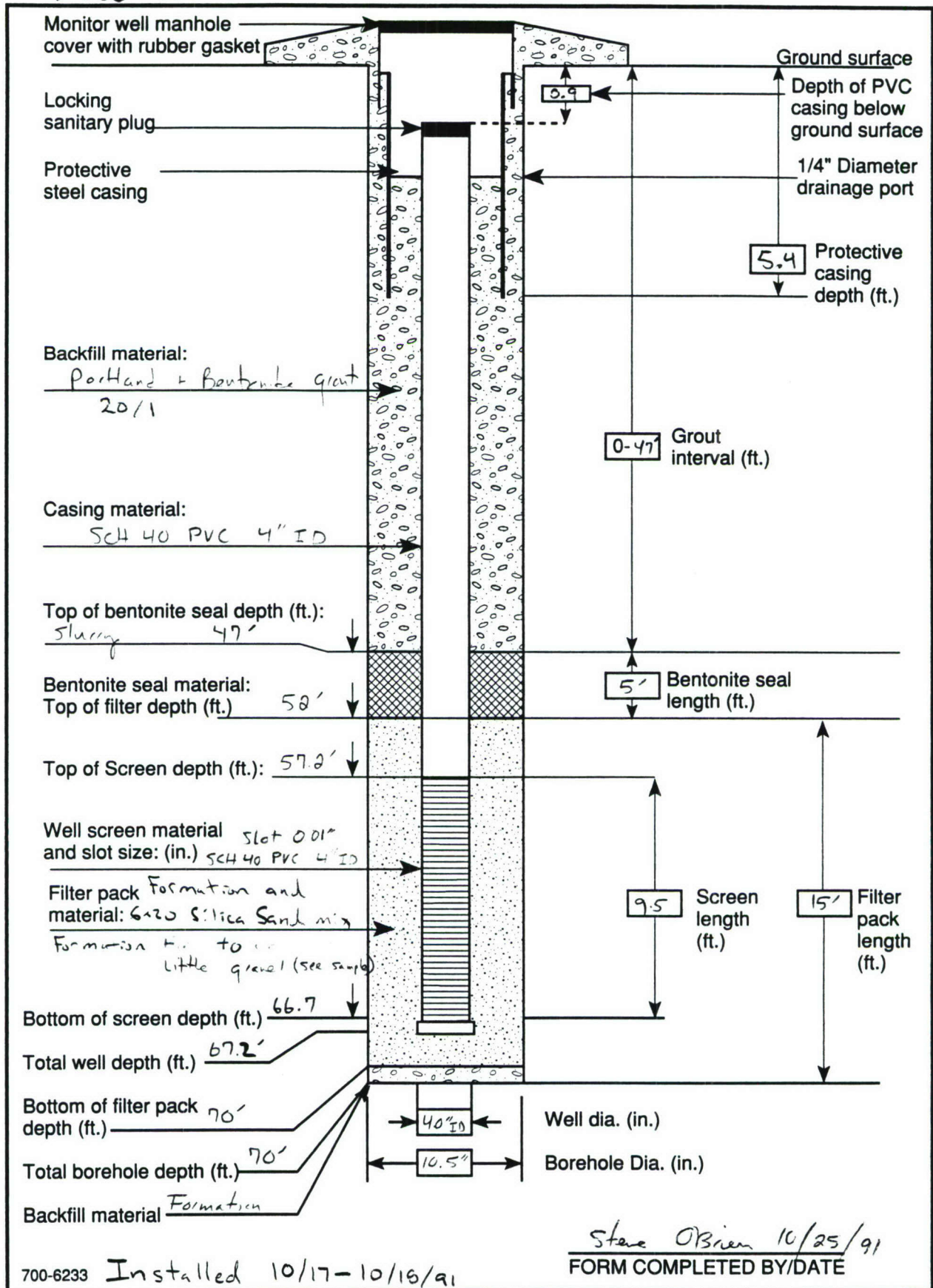
WELL DESIGNATION: MW 19B
LOCATION: 150' south of Bldg 37
COMMENTS: _____

INSTALLATION START DATE: 11/8/91
INSTALLATION COMPLETION DATE: 11/8/91



WELL COMPLETION INFORMATION

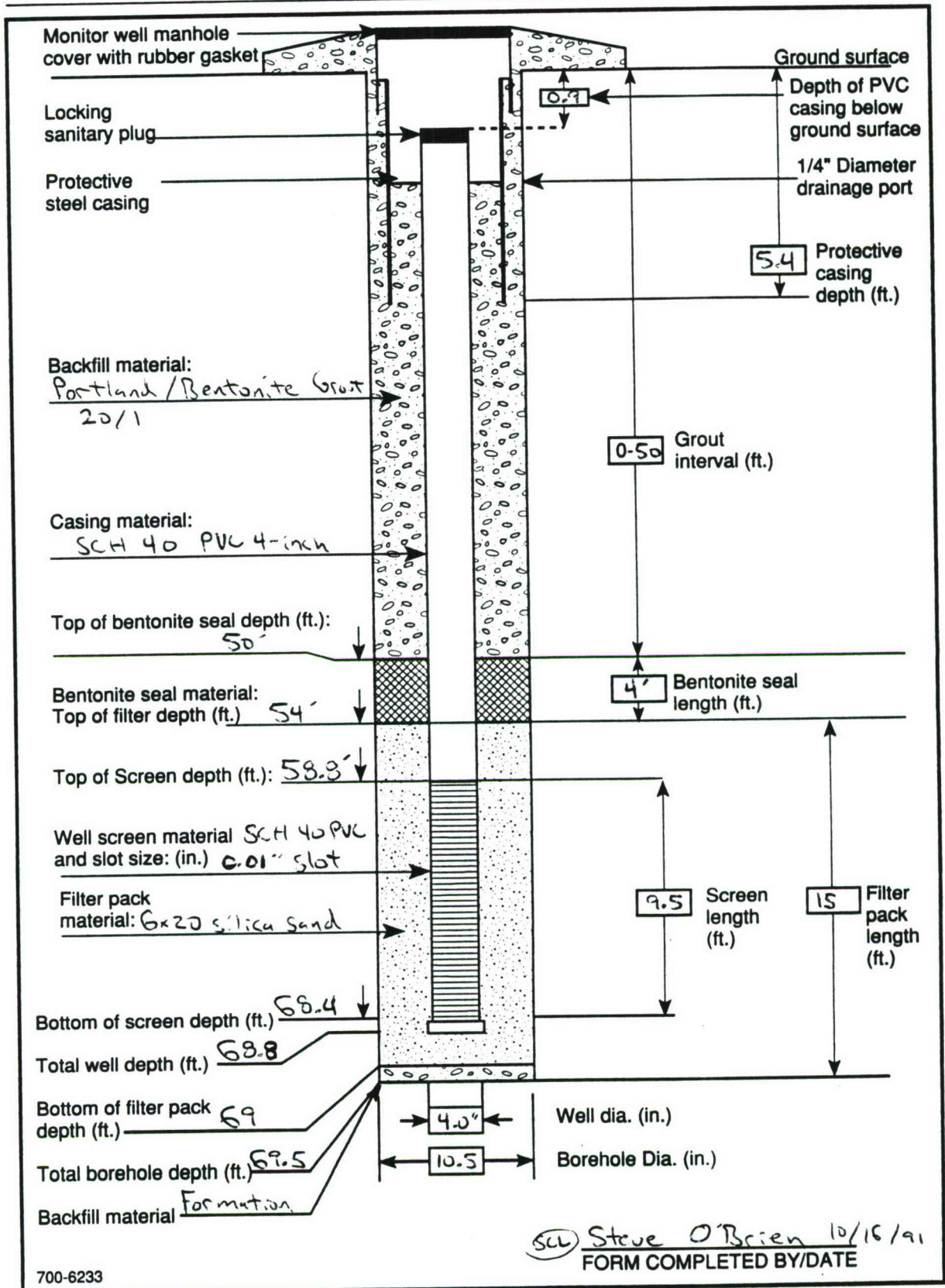
MW-20



WELL COMPLETION INFORMATION

WELL DESIGNATION: MW-21
LOCATION: Downgradient of Bldg #39
COMMENTS: _____

INSTALLATION START DATE: 10/9/91
INSTALLATION COMPLETION DATE: 10/11/91

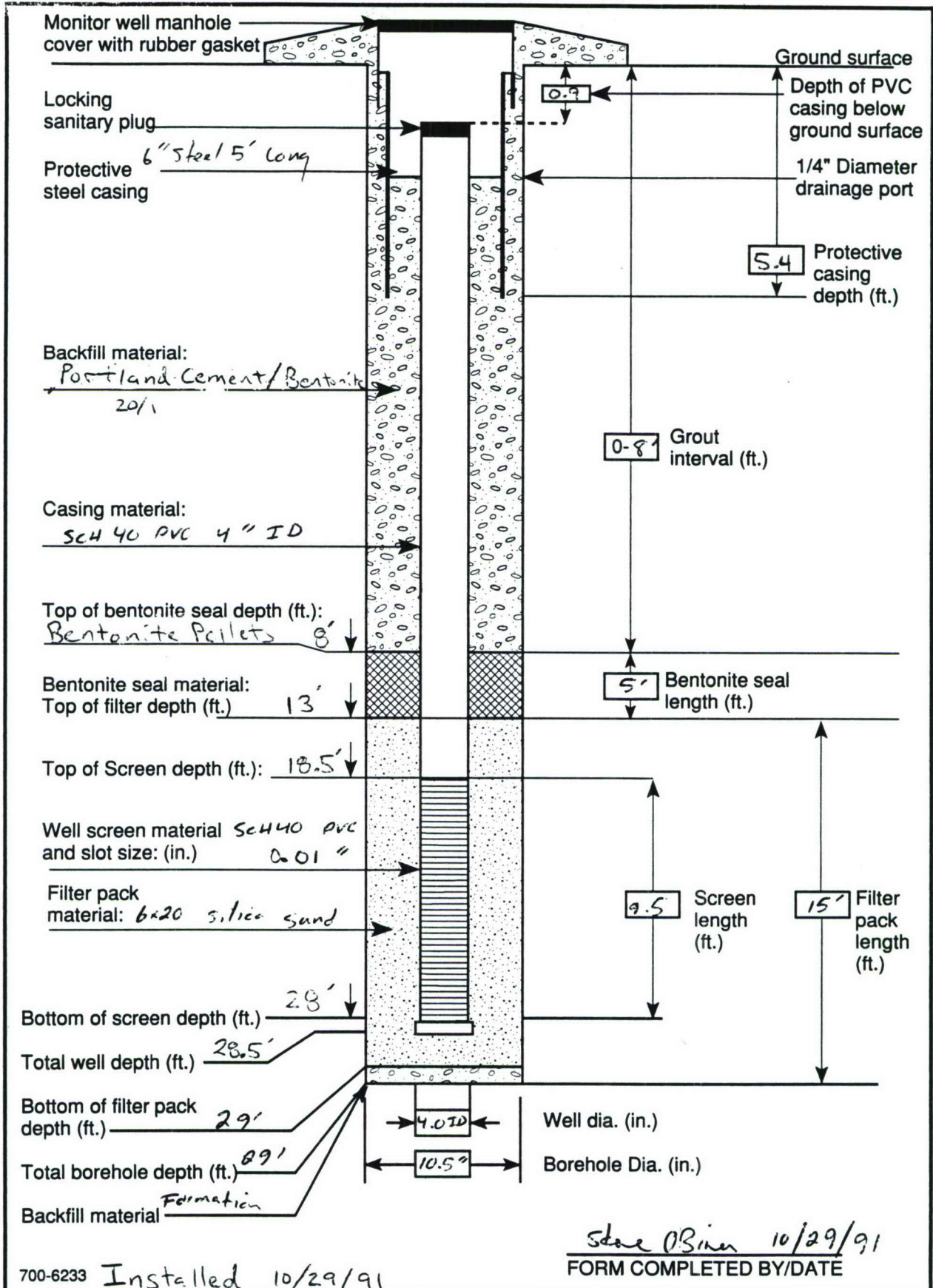


WELL COMPLETION INFORMATION

MW-22



MW-22

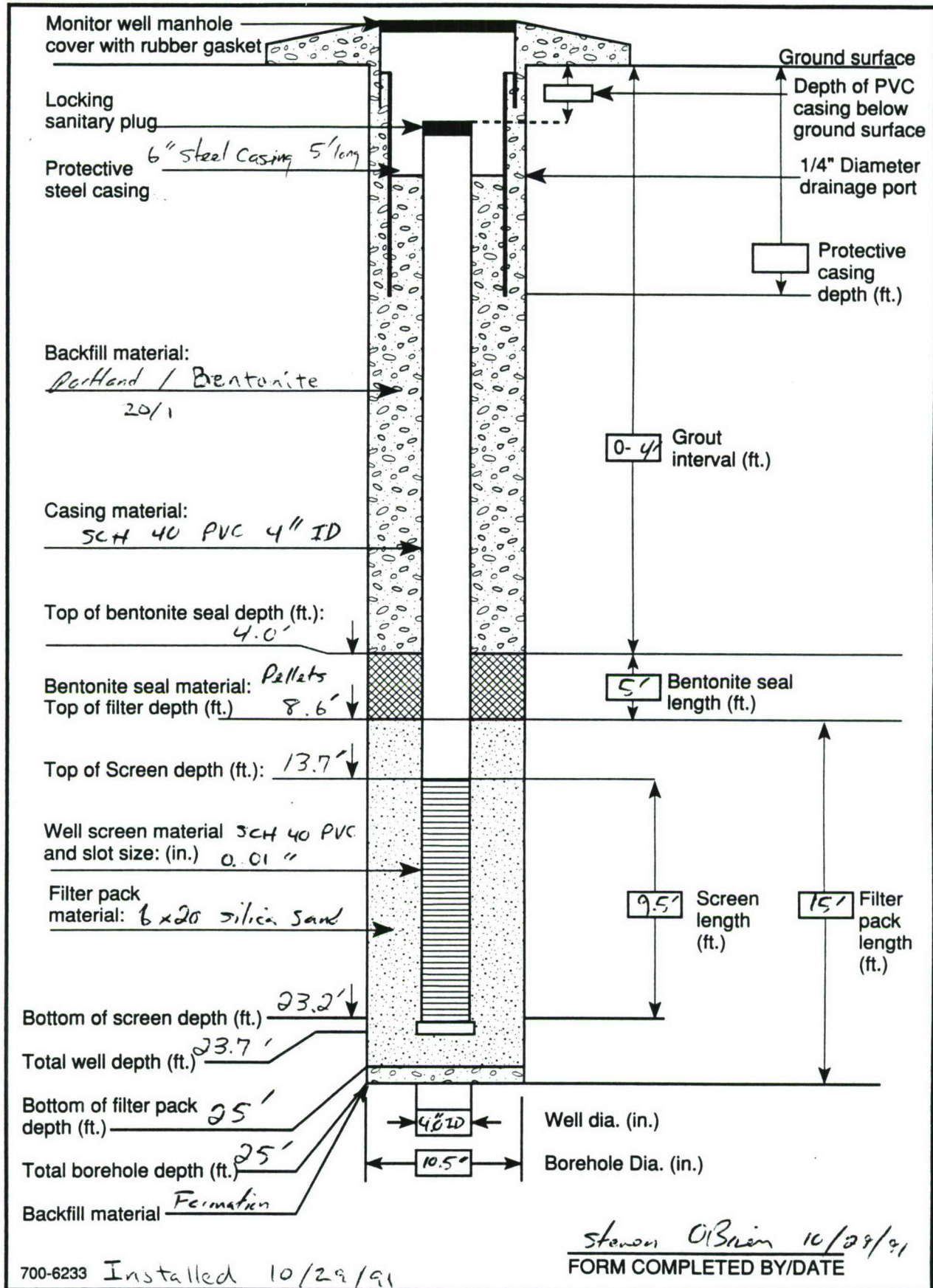


WELL COMPLETION INFORMATION

MW-23

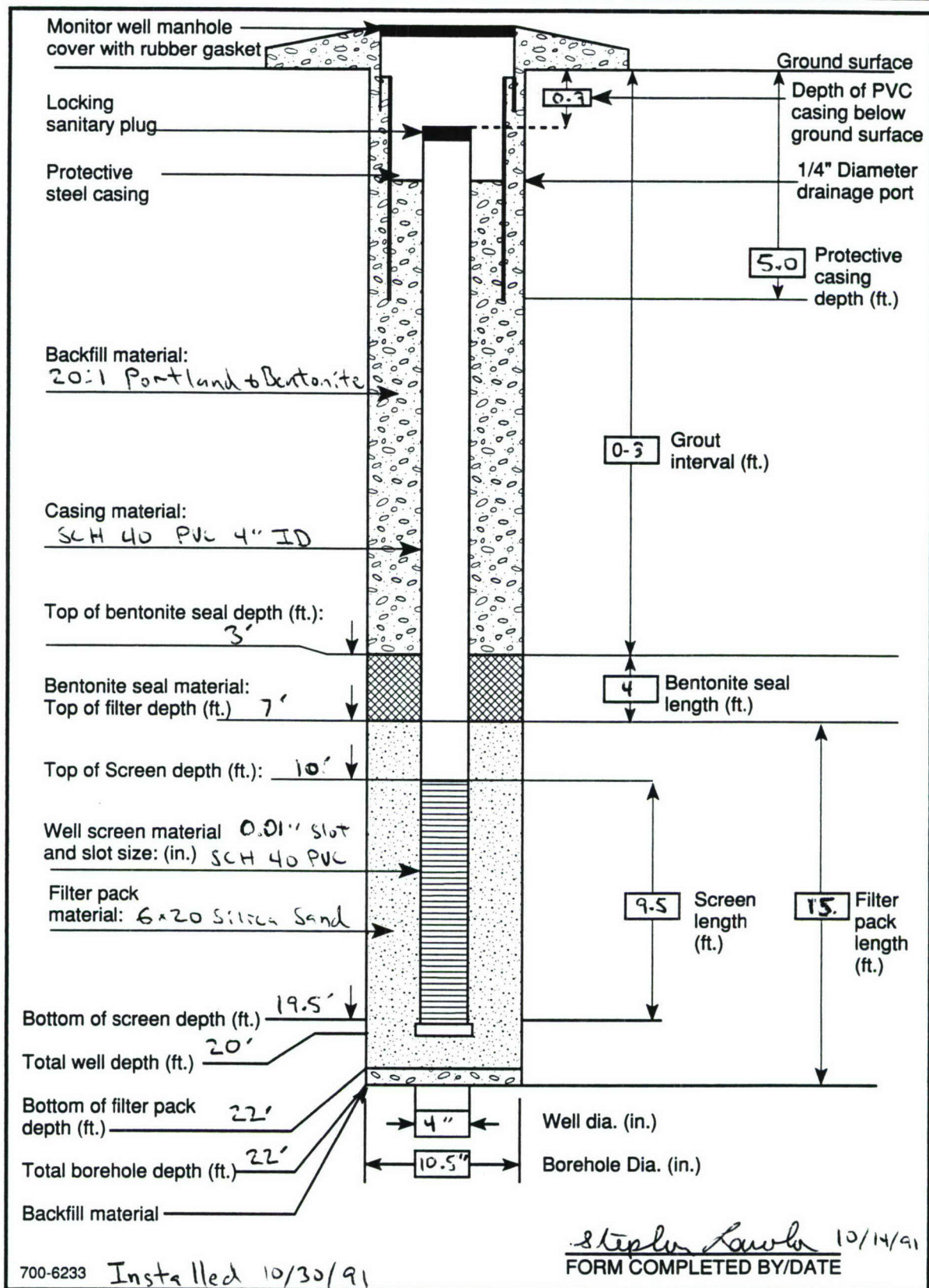


MW-23



WELL COMPLETION INFORMATION

WELL DESIGNATION: MW-24 INSTALLATION START DATE: 10/30/91
 LOCATION: Watertown MTL INSTALLATION COMPLETION DATE: 10/30/91
 COMMENTS: _____



WELL COMPLETION INFORMATION

Appendix C

Survey Notes

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ZONE CODE (input '?' for help) : 35
PROJECTION 1: MA MAINLAND
N,E [,H] OF POINT TO CONVERT : #1

PT#	NORTH	EAST	ELEV
496626.61443		689523.97697	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'21.0"	20919180.304	0.9999685263	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'44.6124"	W	71 10'07.5400"

N,E [,H] OF POINT TO CONVERT : #2

PT#	NORTH	EAST	ELEV
496889.93108		689768.51372	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'23.2"	20919182.081	0.9999685617	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'47.2042"	W	71 10'04.2692"

N,E [,H] OF POINT TO CONVERT : #3

PT#	NORTH	EAST	ELEV
496557.82909		690246.62442	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'27.5"	20919179.819	0.9999685166	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'43.9051"	W	71 09'57.9181"

N,E [,H] OF POINT TO CONVERT : #4

PT#	NORTH	EAST	ELEV
496483.43185		690930.98521	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'33.6"	20919179.297	0.9999685062	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'43.1435"	W	71 09'48.8064"

N,E [,H] OF POINT TO CONVERT : #5

PT#	NORTH	EAST	ELEV
495753.19944		690970.12525	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'33.9"	20919174.349	0.9999684086	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'35.9283"	W	71 09'48.3234"

N,E [,H] OF POINT TO CONVERT : #10

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PT#	NORTH	EAST	ELEV
497011.25308		690971.77504	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'34.0"	20919182.871	0.9999685776	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'48.3561"	W	71 09'48.2353"

N,E [,H] OF POINT TO CONVERT : #11

PT#	NORTH	EAST	ELEV
496960.84115		691320.94466	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'37.1"	20919182.520	0.9999685705	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'47.8445"	W	71 09'43.5870"

N,E [,H] OF POINT TO CONVERT : #12

PT#	NORTH	EAST	ELEV
497260.88485		691287.83492	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'36.8"	20919184.553	0.9999686114	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'50.8098"	W	71 09'44.0122"

N,E [,H] OF POINT TO CONVERT : #13

PT#	NORTH	EAST	ELEV
497209.71485		689940.61133	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'24.8"	20919184.242	0.9999686051	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'50.3566"	W	71 10'01.9602"

N,E [,H] OF POINT TO CONVERT : #15

PT#	NORTH	EAST	ELEV
496861.91593		689944.79143	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'24.8"	20919181.886	0.9999685579	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'46.9207"	W	71 10'01.9226"

N,E [,H] OF POINT TO CONVERT : #16

PT#	NORTH	EAST	ELEV
497247.92697		689527.64044	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
-------------	-------------	------------	-------------	------------

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0 13'21.1" 20919184.512 0.9999686105 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE
N 42 21'50.7500" W 71 10'07.4591"
N,E [,H] OF POINT TO CONVERT : #17

PT# NORTH EAST ELEV
496564.19485 689906.30522

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'24.4" 20919179.871 0.9999685177 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE
N 42 21'43.9811" W 71 10'02.4507"
N,E [,H] OF POINT TO CONVERT : #18

PT# NORTH EAST ELEV
496192.10009 690277.89791

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'27.7" 20919177.341 0.9999684675 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE
N 42 21'40.2909" W 71 09'57.5206"
N,E [,H] OF POINT TO CONVERT : #19

PT# NORTH EAST ELEV
496165.48335 690928.95130

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'33.6" 20919177.143 0.9999684636 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE
N 42 21'40.0027" W 71 09'48.8502"
N,E [,H] OF POINT TO CONVERT : #20

PT# NORTH EAST ELEV
496603.07915 690924.19199

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'33.5" 20919180.107 0.9999685224 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE
N 42 21'44.3258" W 71 09'48.8906"
N,E [,H] OF POINT TO CONVERT : #21

PT# NORTH EAST ELEV
496654.54920 689460.98303

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'20.4" 20919180.495 0.9999685301 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE
N 42 21'44.8908" W 71 10'08.3777"

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N,E [,H] OF POINT TO CONVERT : #22

PT#	NORTH	EAST	ELEV
497246.46210	691211.55647		

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'36.1"	20919184.457	0.9999686094	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'50.6703"	W	71 09'45.0290"

N,E [,H] OF POINT TO CONVERT : #23

PT#	NORTH	EAST	ELEV
497185.20030	690081.83949		

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'26.0"	20919184.073	0.9999686017	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'50.1090"	W	71 10'00.0803"

N,E [,H] OF POINT TO CONVERT : #24

PT#	NORTH	EAST	ELEV
497346.53303	688769.58691		

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'14.3"	20919185.200	0.9999686244	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'51.7530"	W	71 10'17.5515"

N,E [,H] OF POINT TO CONVERT : #25

PT#	NORTH	EAST	ELEV
496860.03228	689953.83738		

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'24.9"	20919181.873	0.9999685576	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'46.9017"	W	71 10'01.8022"

N,E [,H] OF POINT TO CONVERT : #26

PT#	NORTH	EAST	ELEV
497246.75271	689537.28337		

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'21.2"	20919184.504	0.9999686104	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'50.7380"	W	71 10'07.3307"

N,E [,H] OF POINT TO CONVERT : #27

PT#	NORTH	EAST	ELEV
496564.06072	689919.44065		

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'24.5" 20919179.870 0.9999685176 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE

N 42 21'43.9792" W 71 10'02.2758"

N,E [,H] OF POINT TO CONVERT : #29

PT# NORTH EAST ELEV
496194.87855 690883.58849

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'33.2" 20919177.343 0.9999684675 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE

N 42 21'40.2949" W 71 09'49.4529"

N,E [,H] OF POINT TO CONVERT : #39

PT# NORTH EAST ELEV
496164.09675 690939.73701

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'33.7" 20919177.133 0.9999684634 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE

N 42 21'39.9886" W 71 09'48.7066"

N,E [,H] OF POINT TO CONVERT : #40

PT# NORTH EAST ELEV
495344.41255 690982.67650

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'34.0" 20919171.580 0.9999683545 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE

N 42 21'31.8896" W 71 09'48.1778"

N,E [,H] OF POINT TO CONVERT : #100

PT# NORTH EAST ELEV
496904.33773 689558.77793

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'21.3" 20919182.184 0.9999685638 0.0000000000 MA MAINLAND

LATITUDE LONGITUDE

N 42 21'47.3546" W 71 10'07.0621"

N,E [,H] OF POINT TO CONVERT : #101

PT# NORTH EAST ELEV
496967.46142 689392.08498

CONVERGENCE MEAN RADIUS GRID SCALE COMB. SCALE PROJECTION
0 13'19.8" 20919182.616 0.9999685725 0.0000000000 MA MAINLAND

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LATITUDE LONGITUDE
N 42 21'47.9846" W 71 10'09.2792"
N,E [,H] OF POINT TO CONVERT : #102

PT#	NORTH	EAST	ELEV
	496852.46535	690421.98057	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'29.1"	20919181.810	0.9999685563	0.0000000000	MA MAINLAND

LATITUDE LONGITUDE
N 42 21'46.8089" W 71 09'55.5670"
N,E [,H] OF POINT TO CONVERT : #103

PT#	NORTH	EAST	ELEV
	496676.20880	690097.13908	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'26.1"	20919180.625	0.9999685327	0.0000000000	MA MAINLAND

LATITUDE LONGITUDE
N 42 21'45.0803" W 71 09'59.9030"
N,E [,H] OF POINT TO CONVERT : #104

PT#	NORTH	EAST	ELEV
	496426.82646	690393.64754	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'28.8"	20919178.927	0.9999684989	0.0000000000	MA MAINLAND

LATITUDE LONGITUDE
N 42 21'42.6052" W 71 09'55.9666"
N,E [,H] OF POINT TO CONVERT : #105

PT#	NORTH	EAST	ELEV
	496536.83343	690581.82752	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'30.5"	20919179.668	0.9999685136	0.0000000000	MA MAINLAND

LATITUDE LONGITUDE
N 42 21'43.6847" W 71 09'53.4543"
N,E [,H] OF POINT TO CONVERT : #106

PT#	NORTH	EAST	ELEV
	496895.86052	690879.94433	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'33.2"	20919182.092	0.9999685620	0.0000000000	MA MAINLAND

LATITUDE LONGITUDE
N 42 21'47.2198" W 71 09'49.4646"
N,E [,H] OF POINT TO CONVERT : #107

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PT#	NORTH	EAST	ELEV
	496550.43969	690880.98776	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'33.1"	20919179.752	0.9999685153	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'43.8074"	W	71 09'49.4688"

N,E [,H] OF POINT TO CONVERT : #108

PT#	NORTH	EAST	ELEV
	495933.50694	690837.08837	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'32.7"	20919175.574	0.9999684327	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'37.7147"	W	71 09'50.0859"

N,E [,H] OF POINT TO CONVERT : #109

PT#	NORTH	EAST	ELEV
	496024.29875	690451.73334	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'29.3"	20919176.199	0.9999684450	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'38.6266"	W	71 09'55.2139"

N,E [,H] OF POINT TO CONVERT : #63

PT#	NORTH	EAST	ELEV
	495501.88900	691038.83400	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'34.5"	20919172.645	0.9999683752	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'33.4430"	W	71 09'47.4215"

N,E [,H] OF POINT TO CONVERT : #64

PT#	NORTH	EAST	ELEV
	495973.18300	690401.87500	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION
0 13'28.8"	20919175.855	0.9999684382	0.0000000000	MA MAINLAND

	LATITUDE		LONGITUDE
N	42 21'38.1235"	W	71 09'55.8807"

N,E [,H] OF POINT TO CONVERT : #65

PT#	NORTH	EAST	ELEV
	496538.21200	689882.41000	

CONVERGENCE	MEAN RADIUS	GRID SCALE	COMB. SCALE	PROJECTION

WATERTOWN ARSENAL 7192 02-12-92 11:20
1-15-22

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0 13'24.2" 20919179.695 0.9999685142 0.0000000000 MA MAINLAND

	LATITUDE	LONGITUDE
N, E [, H] OF POINT TO CONVERT :	N 42 21'43.7253"	W 71 10'02.7704"

WATERTOWN ARSENAL
1-15-22

7192 02-12-92 11:20

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STARTING, ENDING POINT #s : 1,109
LIST COORDINATES

PT#	NORTH	EAST	ELEV
1	496626.61443	689523.97697	
PK 1			
2	496889.93108	689768.51372	
PK 2			
3	496557.82909	690246.62442	
PK 3			
4	496483.43185	690930.98521	
PK 4			
5	495753.19944	690970.12525	
HUB 5			
10	497011.25308	690971.77504	
PK 10			
11	496960.84115	691320.94466	
PK 11			
12	497260.88485	691287.83492	
PK 12			
13	497209.71485	689940.61133	
PK 13			
15	496861.91593	689944.79143	
MW-15			
16	497247.92697	689527.64044	
MW-16			
17	496564.19485	689906.30522	
MW-17			
18	496192.10009	690277.89791	
MW-18			
19	496165.48335	690928.95130	
MW-19			
20	496603.07915	690924.19199	
MW-20			
21	496654.54920	689460.98303	
MW-21			
22	497246.46210	691211.55647	
MW-22			
23	497185.20030	690081.83949	
MW-23			
24	497346.53303	688769.58691	
MW-24			
25	496860.03228	689953.83738	
MW-15A			
26	497246.75271	689537.28337	
MW-16A			
27	496564.06072	689919.44065	
MW-17A			
29	496194.87855	690883.58849	
MW-19A			
39	496164.09675	690939.73701	
MW-19B			
40	495344.41255	690982.67650	
WATER ELEV			

WATERTOWN ARSENAL
1-15-22

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63	495501.88900	691038.83400
	"10463"	
64	495973.18300	690401.87500
	"10464"	
65	496538.21200	689882.41000
	"10465"	
100	496904.33773	689558.77793
	BLDG 39-COR 100	
101	496967.46142	689392.08498
	BLDG 311-COR 101	
102	496852.46535	690421.98057
	BLDG 312-COR 102	
103	496676.20880	690097.13908
	BLDG 36-COR 103	
104	496426.82646	690393.64754
	BLDG 60-COR 104	
105	496536.83343	690581.82752
	BLDG 37-COR 105	
106	496895.86052	690879.94433
	BLDG 43-COR 106	
107	496550.43969	690880.98776
	BLDG 37-COR 107	
108	495933.50694	690837.08837
	BLDG 111-COR 108	
109	496024.29875	690451.73334
	BLDG 295-COR 109	

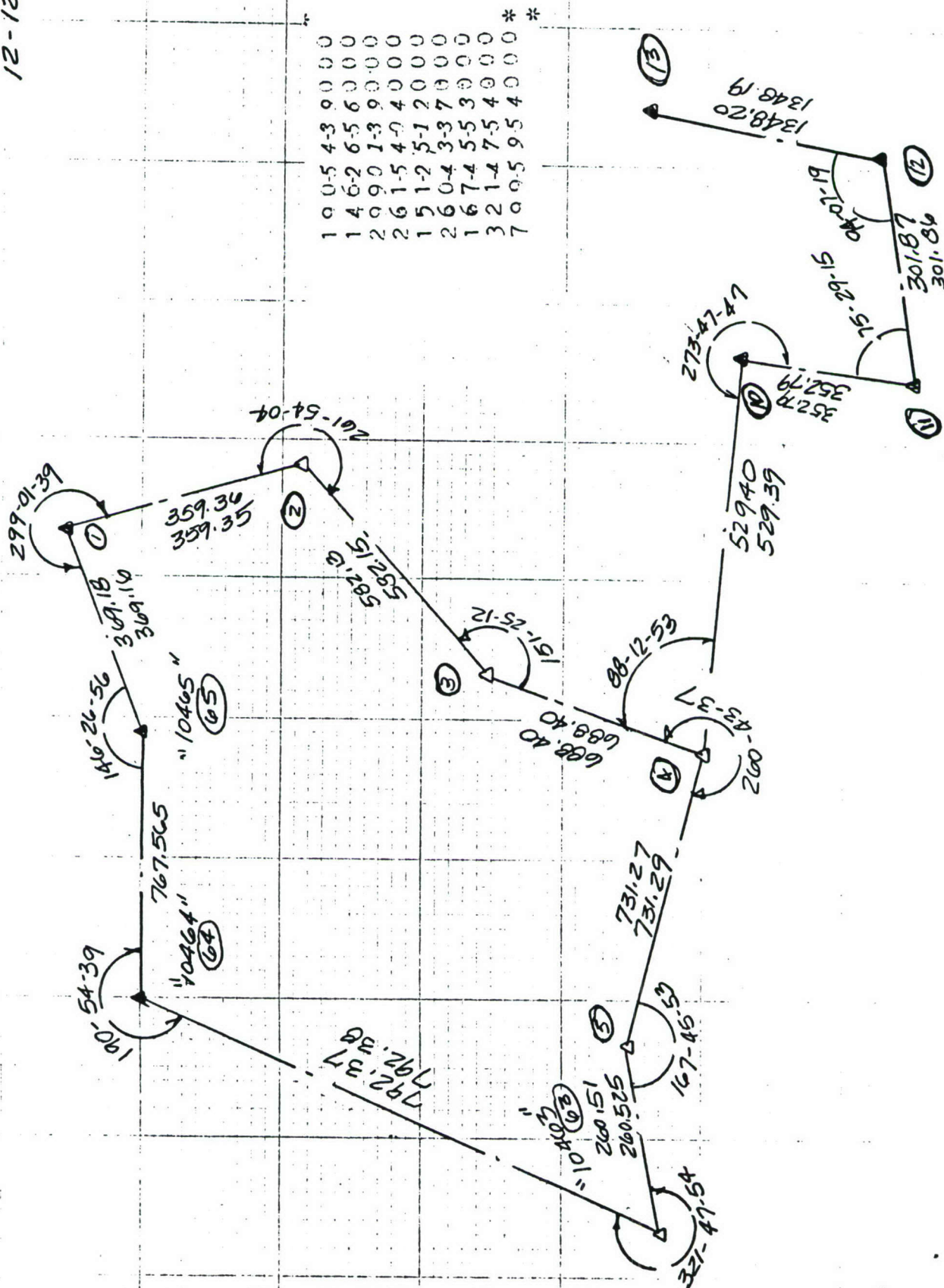
STARTING, ENDING POINT #s :

719Z

WATERTOWN ARSENAL

WATERTOWN, MASS

12-12-91



WATERTOWN ARSENAL 7192 12-12-91 10:20
12-12-91

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BEARING [,ZENITH] 664*665:
HORIZONTAL [,VERTICAL] DISTANCE 664*665:
INVERSE
664 NW 42 35'39.1" 767.565 665 496538.24333 689882.42642
FROM #665 TO PT# [,PT#] :
FROM POINT # [,BACKSIGHT POINT #] : 64
64 495973.18300 690401.87500
"10464"

BACKSIGHT BEARING :
FROM #64 TO PT# [,PT#] : 65
BEARING [,ZENITH] 64*65:
HORIZONTAL [,VERTICAL] DISTANCE 64*65:
INVERSE
64 NW 42 35'39.1" 767.530 65 496538.21200 689882.41000
"10465"

FROM #65 TO PT# [,PT#] :
FROM POINT # [,BACKSIGHT POINT #] :
SET # : 1
ENTER POINTS IN SET, SEPARATED BY A COMMA : 65,1-5,663,664
SET 1 TRAVERSE
65, 1-5, 663, 664
SET # :
SET # : 1

FROM BEARING/ANGLE DISTANCE TO NORTH EAST ELEV
PRINT UNBALANCED TRAVERSE ? ({Y}/N):

FROM BEARING/ANGLE DISTANCE TO NORTH EAST ELEV
UNBALANCED TRAVERSE:

65	NW	76 08'42.3"	369.170	1	496626.61495	689523.98092	
1	NE	42 52'57.4"	359.355	2	496889.93209	689768.52150	
2	SE	55 12'57.8"	582.140	3	496557.83091	690246.63841	
3	SE	83 47'45.1"	688.400	4	496483.43462	690931.00655	
4	SE	3 04'07.3"	731.280	5	495753.20323	690970.15440	
5	SE	15 18'13.6"	260.518	663	495501.92367	691038.91448	
663	NW	53 30'18.8"	792.375	664	495973.18825	690401.91540	

TRUE COORDINATES (N,E [,H]) OF POINT #664: #64

LINEAR ERROR OF CLOSURE:

664 SW 82 35'37.2" .041 664 495973.18300 690401.87500

1 PART IN 92870 HORIZONTAL

CONTINUE WITH BALANCE ? ({Y}/N):

PRINT BALANCED TRAVERSE ? ({Y}/N):

FROM BEARING/ANGLE DISTANCE TO NORTH EAST ELEV
AFTER COMPASS RULE ADJUSTMENT

65	NW	76 08'43.1"	369.174	1	496626.61443	689523.97697	
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WATERTOWN ARSENAL 7192 12-12-91 10:20
12-12-91

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			PK 1		
1	NE 42 52'56.0"	359.352	2	496889.93108	689768.51372
			PK 2		
2	SE 55 12'56.3"	582.135	3	496557.82909	690246.62442
			PK 3		
3	SE 83 47'44.5"	688.393	4	496483.43185	690930.98521
			PK 4		
4	SE 3 04'05.1"	731.281	5	495753.19944	690970.12525
			HUB 5		
5	SE 15 18'11.4"	260.517	663	495501.91952	691038.88254
663	NW 53 30'20.4"	792.381	664	495973.18300	690401.87500

STORE BALANCED COORDINATES ? (Y)/N):
ADJUSTED COORDINATES STORED

FROM	BEARING/ANGLE	DISTANCE	TO	NORTH	EAST	ELEV
FROM POINT # [,BACKSIGHT POINT #] :			663			
			663	495501.91952	691038.88254	

BACKSIGHT BEARING :
FROM #663 TO PT# [,PT#] : 63
BEARING [,ZENITH] 663*63:
HORIZONTAL [,VERTICAL] DISTANCE 663*63:
INVERSE

663	SW 57 50'44.6"	.057	63	495501.88900	691038.83400	
				"10463"		

FROM #63 TO PT# [,PT#] :
FROM POINT # [,BACKSIGHT POINT #] :

FROM	BEARING/ANGLE	DISTANCE	TO	NORTH	EAST	ELEV
FROM POINT # [,BACKSIGHT POINT #] :			5			
			5	495753.19944	690970.12525	
				HUB 5		

BACKSIGHT BEARING :
FROM #5 TO PT# [,PT#] : -63
BEARING [,ZENITH] 5*63:
HORIZONTAL [,VERTICAL] DISTANCE 5*63:
INVERSE

5	SE 15 17'27.9"	260.534	63	495501.88900	691038.83400	
				"10463"		

FROM #5 TO PT# [,PT#] : -64
BEARING [,ZENITH] 5*64:
HORIZONTAL [,VERTICAL] DISTANCE 5*64:
INVERSE

5	NW 68 50'14.5"	609.345	64	495973.18300	690401.87500	
				"10464"		

FROM #5 TO PT# [,PT#] : -663
BEARING [,ZENITH] 5*663:
HORIZONTAL [,VERTICAL] DISTANCE 5*663:
INVERSE

5	SE 15 18'11.4"	260.517	663	495501.91952	691038.88254	
---	----------------	---------	-----	--------------	--------------	--

NEWTON QUAD
TRAVERSE DATA

HED-247

E

STATION 10463

CITY-TOWN WATERTOWN

PROJECT No.

2.22

3.32

X-COORD. 691038.834 ✓

Y-COORD. 495501.889 ✓

1927 NORTH AMERICAN DATUM

ELEV. 10.56 ✓

SEA LEVEL DATUM OF 1929

DISTANCES AND DIRECTIONS TO OBJECTS OBSERVED

OBJECT	DISTANCE	GRID AZIMUTH		
FANEUIL-1979 ✓	1406.049 ✓	47	28	16.5 ✓
10464 ✓	792.360 ✓	126	29	53.4 ✓

DETAILED DESCRIPTION The station is a punch mark in a RR spike set flush in a bit. conc. sidewalk on the South side of North Beacon St., just West of a concrete bridge over the Charles River in the Southeastern part of WATERTOWN.

It is : 43.7 ft. Northeast of a triple trunk cherry tree in a grassy area on the South side of North Beacon St.

: 41.8 ft. East of of an 8" maple, near the back of the sidewalk on the South side of North Beacon St.

: 38.6 ft. North of a 14" maple, near the back of the sidewalk on the South side of North Beacon St.

: 3.6 ft. in from the street edge of the curb.

ADJUSTED

RECOVERED 5/07 Collected by 2" Bituminous Concrete M.W.K.A. 62-20

U.S. MILITARY RESERVATION

6' IRON FENCE W/BARBED WIRE

BIT. CONC. WALK

78.0

TO WATERTOWN SQUARE

10463

71.50

NORTH BEACON ST.

TO BOSTON

69.85

GRANITE CURB

BIT. CONC. SIDEWALK

TRIPLE TRUNK CHERRY

CHARLES RIVER

BENCHES

NEWTON QUAD
TRAVERSE DATA

HED-247

E

STATION 10464 Bk. 27294/25

2.22 3.32

CITY-TOWN WATERTOWN

PROJECT No. _____

X-COORD. <u>690401.875</u> ✓ Y-COORD. <u>495973.183</u> ✓ 1927 NORTH AMERICAN DATUM ELEV. <u>10.383</u> ✓ SEA LEVEL DATUM OF 1929	DISTANCES AND DIRECTIONS TO OBJECTS OBSERVED		
	OBJECT	DISTANCE	GRID AZIMUTH
	10463	792.360 ✓	306 29 53.4 ✓
	10465	767.530 ✓	137 24 20.8 ✓
	10931	543.096 ✓	136 5 18.6 ✓

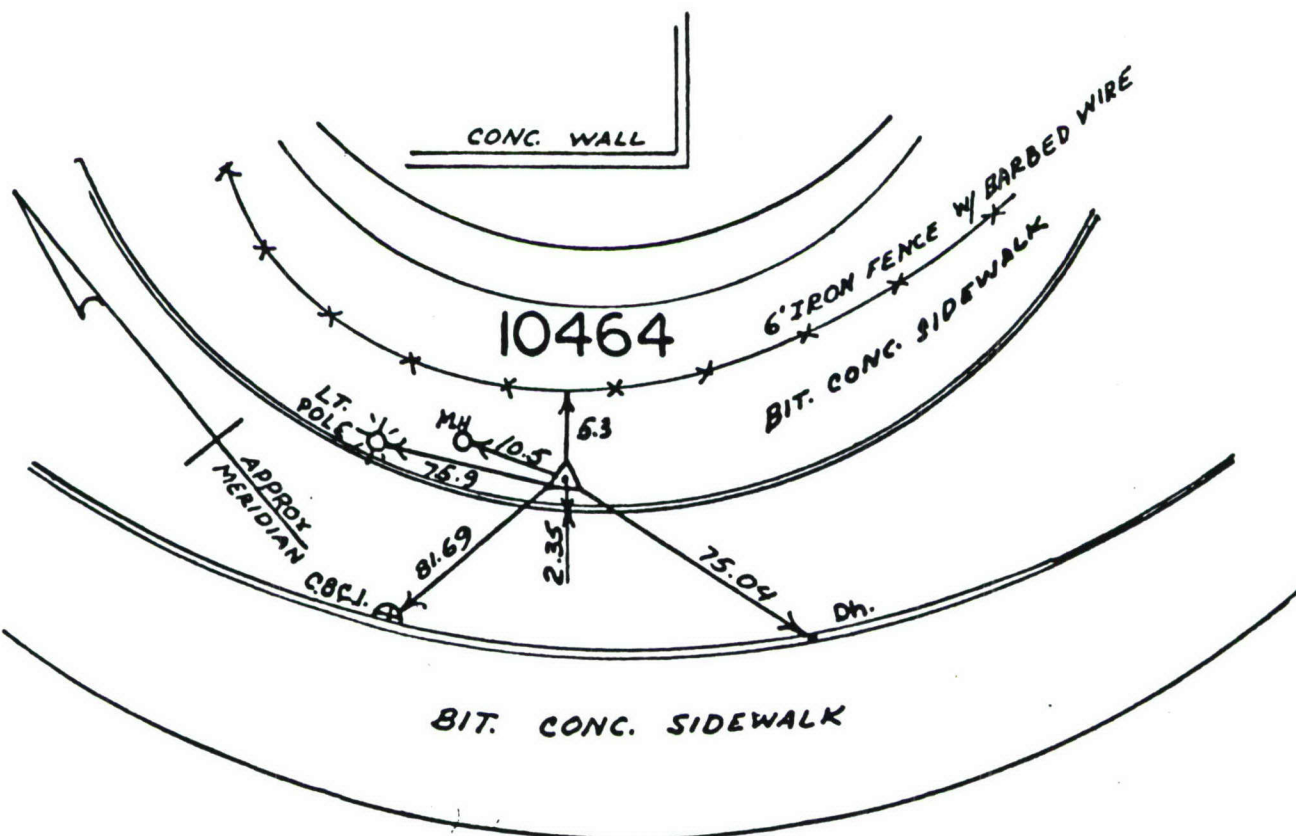
DETAILED DESCRIPTION The station is a punch mark in a RR spike set flush in a bit. conc. sidewalk on the North side of North Beacon St. about a thousand ft. West of the Bridge across the Charles River and is located in the most Southeasterly part of the City of WATERTOWN.

- It is :
- 75.9 ft. Southeast of a light pole on the street edge of the sidewalk on the North side of North Beacon St.
 - 10.5 ft. Southeast of the near edge of the rim of a manhole in the middle of the sidewalk on the North side of North Beacon St.
 - 5.3 ft. Southwest of the face of a 6 ft. iron fence of the Military Reservation on the North side of North Beacon St.
 - 2.35 ft. in from the street edge of the curb (Northeast).

ADJUSTED _____

RECOVERED 5/67 MURA

62-20



NEWTON QUAD
TRAVERSE DATA

HED-247

E

STATION 10465 Bk. 27294/27
CITY-TOWN WATERTOWN PROJECT NO. _____

2.22	3.32
------	------

X-COORD.	Y-COORD.	1927 NORTH AMERICAN DATUM	ELEV.	SEA LEVEL DATUM OF 1929	DISTANCES AND DIRECTIONS TO OBJECTS OBSERVED		
					OBJECT	DISTANCE	GRID AZIMUTH
689882.410 ✓	496538.212 ✓		22.933 ✓		10464	767.530 ✓	317 24 20.8 ✓
					10466	1808.349 ✓	101 5 28.2 ✓

DETAILED DESCRIPTION The station is a punch mark in a steel re-bar set down 0.1 ft. in the grass just beyond the back edge of the bit. conc. sidewalk on the North side of North Beacon St., about 300 ft. East of the intersection of Greenough Blvd. and North Beacon St., in the most Southerly part of the city of WATERTOWN.

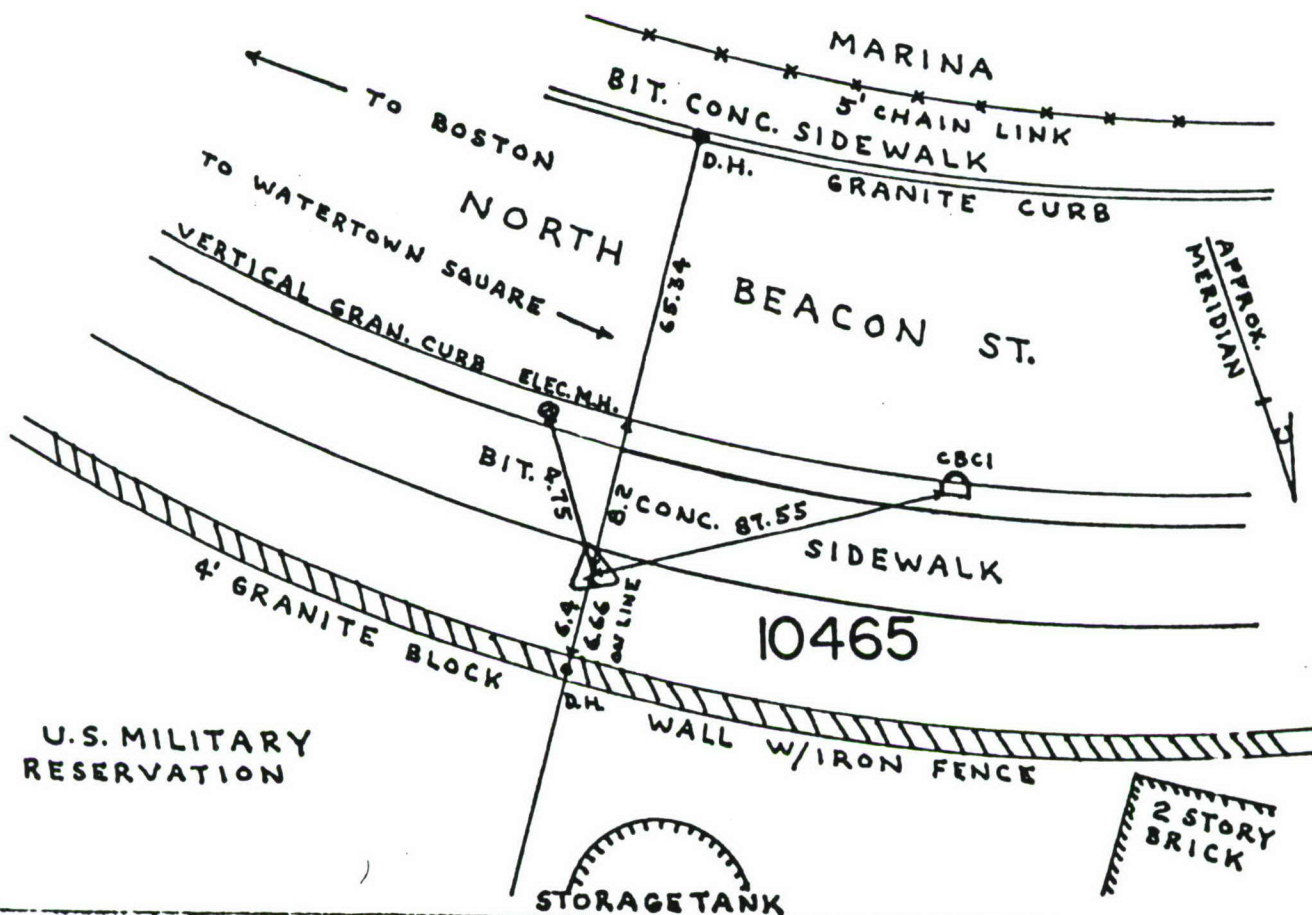
It is : 87.55 ft. Southeast of the East corner of a catch basin with a curb inlet on the North side of North Beacon St., just East of the intersection with Greenough Blvd.
: 8.2 ft. from the street edge of the curb.
: 6.4 ft. fm the face of a granite block wall.
: 4.75 ft. North of the near edge of an Electric manhole frame.

ADJUSTED _____

RIGGC 5/4:7
RECOVERED

MLV RA

62-20



Job # 7198

WATERTOWN ARSENAL
EELS of M. WELLS

SV

SM

12/10/91

10463 P. MARK RASPK S. SIDE N. BROWN ST	5.65	16.21	M.S.L	10.56	(28)
TP#1 E RD SE COR ARSENAL	10.36	25.55	1.02	15.19 (15.18)	✓
TP#2 RIM C/B TRACOT AVE	14.17	37.07	2.65	22.90 (22.89)	✓
MW 19B (RIM)	5.89	41.61	1.35	35.72 (35.70)	✓
TP#1 SE CORNER COVE BASE MET LT Pole W. SIDE TALENT AVE FRONT RLY #131	3.97	41.51	4.07	37.54 (37.51)	✓
MW 19 (Rim)	4.94	40.71	5.74	35.77 (35.74)	✓
MW 19A (Rim)	3.23	39.04	4.90	35.81 (35.77)	✓

				39.04 ✓	(30)

[illegible][illegible]

[illegible]

[illegible]

HARRY R. FELDMAN, INC.

CIVIL ENGINEERS AND LAND SURVEYORS

112 SHAWMUT AVENUE, BOSTON, MASS. 02118

TEL. 357-9740

sheet no. 1041

date 12-13-91

computed A/A

checked A/A

#7192

WATERTOWN ARSENAL

WATERTOWN, MASS.

WELL NO	TOP COVER ELEV.	TOP PVC ELEV.
MW-15	34.85	34.04
MW-15A	34.90	34.09
MW-16	34.40	33.45
MW-16A	34.76	33.91
MW-17	32.75	31.80
MW-17A	33.02	32.10
MW-18	22.89	22.13
MW-19	35.77	34.87
MW-19A	35.81	34.97
MW-19B	35.72	34.87
MW-20	39.49	38.49
MW-21	24.96	23.85
MW-22	30.54	29.80
MW-23	36.70	35.98
MW-24	31.76	30.92

NOTES: 1. Elevations refer to NGVD.

2. Water elevation of the Charles River
Obtained on 12-11-91 at 8:56 AM
ELEV = 2.1 (NGVD.)3. Bench Mark: Top of RR Spike set flush in
bit. conc. sidewalk on South Side of North
Beacon St., just west of a concrete bridge
over the Charles River designated "10463".
ELEV = 10.56 (NGVD).

WATERTOWN ARSENAL JOB #7192 12-13-91 10:45
12-13-91

Page 1

LIST COORDINATES

PT#	NORTH	EAST	ELEV
15	496861.91593	689944.79143	
MW-15			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
25	496860.03228	689953.83738	
MW-15A			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
16	497247.92697	689527.84044	
MW-16			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
26	497246.75271	689537.26337	
MW-16A			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
17	496564.19485	689906.30522	
MW-17			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
27	496564.06072	689919.44065	
MW-17A			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
18	496192.10009	690277.89791	
MW-18			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
19	496165.48335	690928.95130	
MW-19			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
29	496194.87855	690883.58849	
MW-19A			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
39	496164.09675	690939.73701	

WATERTOWN ARSENAL JOB #7192 12-13-91 10:45
12-13-91

Page 2

LIST COORDINATES

MW-199

PT#	NORTH	EAST	ELEV
20	496603.07915	690924.19199	

MW-20

LIST COORDINATES

PT#	NORTH	EAST	ELEV
21	496654.54920	689460.98303	

MW-21

LIST COORDINATES

PT#	NORTH	EAST	ELEV
22	497246.46210	691211.55647	

MW-22

LIST COORDINATES

PT#	NORTH	EAST	ELEV
23	497185.20030	690081.83949	

MW-23

LIST COORDINATES

PT#	NORTH	EAST	ELEV
24	497346.53303	688769.58691	

MW-24

LIST COORDINATES

PT#	NORTH	EAST	ELEV
100	496904.33773	689558.77792	

BLDG 39-COR 100

LIST COORDINATES

PT#	NORTH	EAST	ELEV
101	496967.46142	689392.08498	

BLDG 311-COR 101

LIST COORDINATES

PT#	NORTH	EAST	ELEV
102	496852.46535	690421.98057	

BLDG 312-COR 102

LIST COORDINATES

PT#	NORTH	EAST	ELEV
103	496676.20880	690097.13908	

BLDG 36-COR 103

LIST COORDINATES

PT#	NORTH	EAST	ELEV
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WATERTOWN ARSENAL JOB #7192 12-13-91 10:45
12-13-91

Page 3

104 496426.82646 690393.64754
BLDG 60-COR 104

LIST COORDINATES

PT#	NORTH	EAST	ELEV
105	496536.83343	690581.82752	
BLDG 37-COR 105			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
106	496895.86052	690879.94433	
BLDG 43-COR 106			

LIST COORDINATES

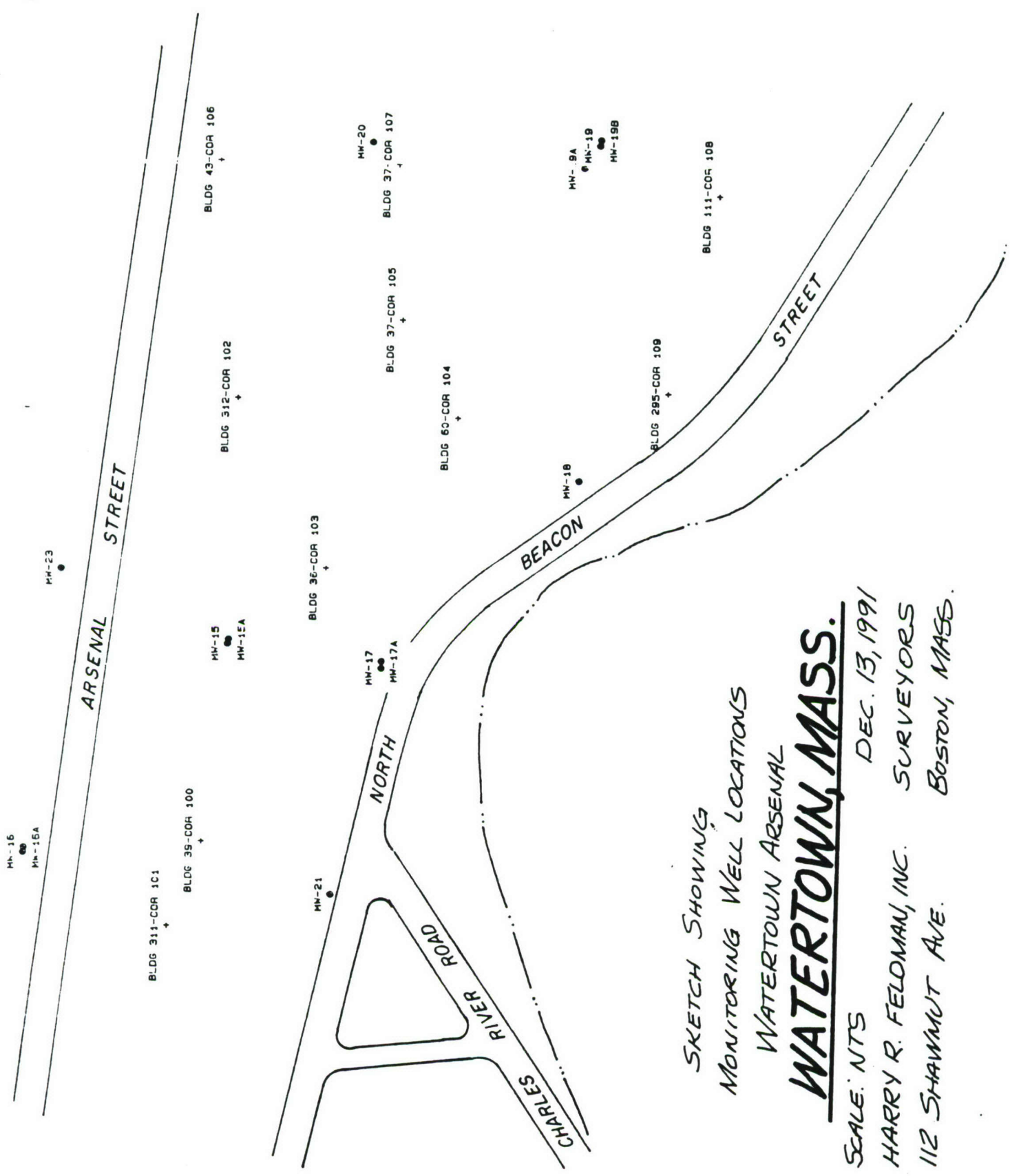
PT#	NORTH	EAST	ELEV
107	496550.43969	690880.98776	
BLDG 37-COR 107			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
108	495933.50694	690837.08837	
BLDG 111-COR 108			

LIST COORDINATES

PT#	NORTH	EAST	ELEV
109	496024.29875	690451.73334	
BLDG 295-COR 109			



SKETCH SHOWING
MONITORING WELL LOCATIONS
WATERTOWN ARSENAL
WATERTOWN, MASS.
SCALE: NTS
HARRY R. FELDMAN, INC.
112 SHAWMUT AVE.
DEC. 13, 1991
SURVEYORS
BOSTON, MASS.

3.32

C-27



IRDMIS MAPPING COORDINATES FOR MTL SAMPLES



THAMA MTL Building Corner Coordinates

Building	Corner	X-Coord	Y-Coord
241	SW	321310	4692164
243	SE	321354	4692176
246	SW	321254	4692326
311	SW	321358	4692166
43	SW	321692	4692150
313S	SW	321708	4692082
313C	SW	321710	4692104
313N	SW	321712	4692120
37	SW	321704	4692026
312	SW	321666	4692044
131	SW	321726	4691938
111	SW	321786	4691834
60	SW	321618	4691974
36	SW	321564	4692086
97	SW	321466	4692072
292	SW	321446	4692088
100	Center	321504	4692086
656	SW	321420	4692120
39	SW	321326	4692186
Bunkers	SW	321838	4691740
117	SW	321674	4691926
118	SW	321674	4691950
229	SW	321330	4692156
242	SW	321566	4692102

**Appendix D
Completed Well
Development Forms**

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL
WELL DESIGNATION: MW-15
DATE(S) OF WELL INSTALLATION: 10/14/91
DATE(S) OF WELL DEVELOPMENT: Start well development 10/25/91
STATIC WATER LEVEL FROM TOP OF WELL CASING: End development 11/21/91
☒ PRIOR TO DEVELOPMENT 19.5'
☒ 24 HRS AFTER DEVELOPMENT 16.6'
QUANTITY OF MUD/WATER:
☒ LOST DURING DRILLING 0
☒ REMOVED PRIOR TO WELL INSERTION 0
☒ LOST DURING THICK FLUID DISPLACEMENT 0
☒ ADDED DURING GRANULAR FILTER PLACEMENT 0
QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:
☒ STANDING IN WELL 6.73 gallons
☒ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 11.2
FIELD MEASUREMENT OF pH:
☒ BEFORE DEVELOPMENT 8.2
☒ DURING DEVELOPMENT 8.1
☒ DURING DEVELOPMENT 7.4
☒ AFTER DEVELOPMENT 7.2
FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:
☒ BEFORE DEVELOPMENT 2400
☒ DURING DEVELOPMENT 2590
☒ DURING DEVELOPMENT 2400
☒ AFTER DEVELOPMENT 2310

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-15

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL:

29.8'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:

No sediment on bottom of well following development

PHYSICAL CHARACTER OF REMOVED WATER:

☒ CLARITY Water cloudy

☒ COLOR brown

☒ PARTICULATES silt

☒ ODOR _____

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: use Grundfos
3-inch submersible pump and 5-foot x 3-inch bailer.

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Move 3-inch bailer
up and down inside well.

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: ~5-10 gpm

ESTIMATED RECHARGE RATE: < 1 gpm

QUANTITY OF FLUID/WATER REMOVED: *

☒ INCREMENTAL Bailed well dry 5 times @ 18 gal

☒ TOTAL Total volume 90 gallons

QUANTITY OF TIME FOR REMOVAL:

☒ INCREMENTAL _____

☒ TOTAL Development took place between
10/25/91 and 11/21/91.

* To develop well, well evacuated (pumped dry) 5 times
with a minimum 4-hour recovery periods.

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW-15A

DATE(S) OF WELL INSTALLATION: 10/15 - 10/16/91

DATE(S) OF WELL DEVELOPMENT: Start well development 10/25/91
End development 1/15/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

■ PRIOR TO DEVELOPMENT 22.5

■ 24 HRS AFTER DEVELOPMENT 24.6

QUANTITY OF MUD/WATER:

■ LOST DURING DRILLING ~100 gallons

■ REMOVED PRIOR TO WELL INSERTION 0

■ LOST DURING THICK FLUID DISPLACEMENT 0

■ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

■ STANDING IN WELL 25.8 gallons

■ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 17 gallons

FIELD MEASUREMENT OF pH:

■ BEFORE DEVELOPMENT ① 11.8

■ DURING DEVELOPMENT ② 11.4

■ DURING DEVELOPMENT ③ pH meter not working ④ 10.8

■ AFTER DEVELOPMENT ~~11.2~~ ⑤ 11.2

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

■ BEFORE DEVELOPMENT ① 1000 μ mho

■ DURING DEVELOPMENT ② 2710 μ mho

■ DURING DEVELOPMENT ③ 2550 μ mho ④ 1700 μ mho

■ AFTER DEVELOPMENT ⑤ 1720 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-15A

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL: 61.9'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:
No sediment on bottom of well following development

PHYSICAL CHARACTER OF REMOVED WATER:

☒ CLARITY water cloudy

☒ COLOR brown

☒ PARTICULATES silt

☒ ODOR _____

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: use Grundfos
3-inch submersible pump and 5-foot x 3-inch bailer (1.8 gal).

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Move 3-inch
bailer up and down inside well.

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted.

TYPICAL PUMPING RATE: 25 to 10 gpm

ESTIMATED RECHARGE RATE: < 1.0 gpm

* QUANTITY OF FLUID/WATER REMOVED:

☒ INCREMENTAL Bailed well dry 5 times @ 43 gallons

☒ TOTAL Total volume 214 gallons

QUANTITY OF TIME FOR REMOVAL:

☒ INCREMENTAL _____

☒ TOTAL Development took place between 10/25/90
and 11/15/90.

*To develop well, well evacuated (pumped dry) 5 times
With a minimum 4-hour recovery period.

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW 16

DATE(S) OF WELL INSTALLATION: 10/30/91

DATE(S) OF WELL DEVELOPMENT: 11/21/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

☒ PRIOR TO DEVELOPMENT 13.52'

☒ 24 HRS AFTER DEVELOPMENT 13.4'

QUANTITY OF MUD/WATER:

☒ LOST DURING DRILLING 0

☒ REMOVED PRIOR TO WELL INSERTION 0

☒ LOST DURING THICK FLUID DISPLACEMENT 0

☒ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

☒ STANDING IN WELL 7.1 gal

☒ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 11.8

FIELD MEASUREMENT OF pH:

☒ BEFORE DEVELOPMENT 6.3

☒ DURING DEVELOPMENT 42 gallons 6.2

☒ DURING DEVELOPMENT 90 gallons 6.2 140 gal pH-6.2

☒ AFTER DEVELOPMENT pH - 6.2

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

☒ BEFORE DEVELOPMENT 160 μ mho

☒ DURING DEVELOPMENT 215 μ mho 42 gal

☒ DURING DEVELOPMENT 90 gal 161 μ mho 140 gal C-200 μ mho

☒ AFTER DEVELOPMENT 200 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-16

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL: 25.0'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:
No sediment in bottom of well following development

PHYSICAL CHARACTER OF REMOVED WATER:

- ☒ CLARITY at end of development water slightly cloudy
- ☒ COLOR brown
- ☒ PARTICULATES silt
- ☒ ODOR no odor

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: used Grunfos
3-inch pump and 5-foot x 3-inch bailer

DESCRIPTION OF SURGE TECHNIQUE, IF USED: raise 3-inch pump
up and down in well

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: 5 gpm

ESTIMATED RECHARGE RATE: 1.3 gpm

QUANTITY OF FLUID/WATER REMOVED:

- ☒ INCREMENTAL _____
- ☒ TOTAL 160 gallons

QUANTITY OF TIME FOR REMOVAL:

- ☒ INCREMENTAL _____
- ☒ TOTAL 120 minutes

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW 16A

DATE(S) OF WELL INSTALLATION: 11/6/91

DATE(S) OF WELL DEVELOPMENT: begin development 11/11/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

☒ PRIOR TO DEVELOPMENT 15.2'

☒ 24 HRS AFTER DEVELOPMENT _____

QUANTITY OF MUD/WATER:

☒ LOST DURING DRILLING 20 gallons

☒ REMOVED PRIOR TO WELL INSERTION 0

☒ LOST DURING THICK FLUID DISPLACEMENT 0

☒ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

☒ STANDING IN WELL 11.25 gal

☒ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 17.1 gal

FIELD MEASUREMENT OF pH:

☒ BEFORE DEVELOPMENT ① 6.3

☒ DURING DEVELOPMENT ② 6.4

☒ DURING DEVELOPMENT ③ 6.8 ④ 6.8

☒ AFTER DEVELOPMENT ⑤ 6.8

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

☒ BEFORE DEVELOPMENT ① 215 μ mho

☒ DURING DEVELOPMENT ② 220 μ mho

☒ DURING DEVELOPMENT ③ 210 μ mho ④ 212 μ mho

☒ AFTER DEVELOPMENT ⑤ 210 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-16A

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL:
34.6'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:

~ 0.2' silt on bottom of well prior to development. No

PHYSICAL CHARACTER OF REMOVED WATER: silt on bottom of well after development.

☒ CLARITY Water cloudy

☒ COLOR brown

☒ PARTICULATES silt & clay

☒ ODOR none

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: use Grundfos 3-inch submersible pump and 5-foot x 3-inch bailer

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Move 3-inch bailer up and down in well.

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: 5 gpm

ESTIMATED RECHARGE RATE: < 1 gpm

* QUANTITY OF FLUID/WATER REMOVED:

☒ INCREMENTAL Bailed well dry 5 times @ 28.4 gal

☒ TOTAL Total volume 142 gallons

QUANTITY OF TIME FOR REMOVAL:

☒ INCREMENTAL

☒ TOTAL Development took place between 11/11/91 and 12/5/91.

* To develop wells evacuated (pumped dry) 5 times with a minimum 4-hour recovery period.

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW-17

DATE(S) OF WELL INSTALLATION: 10/12/91

DATE(S) OF WELL DEVELOPMENT: Start development 10/25/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

☒ PRIOR TO DEVELOPMENT 21.06'

☒ 24 HRS AFTER DEVELOPMENT 20.4'

QUANTITY OF MUD/WATER:

☒ LOST DURING DRILLING 0

☒ REMOVED PRIOR TO WELL INSERTION 0

☒ LOST DURING THICK FLUID DISPLACEMENT 0

☒ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

☒ STANDING IN WELL 5.84 gallons

☒ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 10.7 gal

FIELD MEASUREMENT OF pH:

☒ BEFORE DEVELOPMENT ① 5.0

☒ DURING DEVELOPMENT ② 7.4 ③ 6.8

☒ DURING DEVELOPMENT ④ 7.0 ⑤ 6.2

☒ AFTER DEVELOPMENT ⑥ 6.6

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

☒ BEFORE DEVELOPMENT ① 290 μ mho

☒ DURING DEVELOPMENT ② 290 μ mho ③ 290 μ mho

☒ DURING DEVELOPMENT ④ 289 μ mho ⑤ 280 μ mho

☒ AFTER DEVELOPMENT ⑥ 282 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-17

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL: 30'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:
No sediment on bottom of well following development

PHYSICAL CHARACTER OF REMOVED WATER:

CLARITY Water cloudy

COLOR gray-brown

PARTICULATES silt and clay

ODOR none

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: used Grundfos
3-inch submersible pump and 5 foot x 3 inch bailer (1.8 gal).

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Surge well
by moving bailer up and down inside
well casing.

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: ~ 5 to 10 gpm

ESTIMATED RECHARGE RATE: < 1 gpm

QUANTITY OF FLUID/WATER REMOVED: *

INCREMENTAL Bailed well dry 6 times a 16.5 gal

TOTAL Total Volume 99 gallons

QUANTITY OF TIME FOR REMOVAL:

INCREMENTAL Development took place between

TOTAL 10/25/91 and 11/15/91.

* To develop well, evacuated well (pumped dry) 6 times
with minimum 4-hour recovery between pumpings.

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW-17A

DATE(S) OF WELL INSTALLATION: 10/11/91

DATE(S) OF WELL DEVELOPMENT: Start development 10/25/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

■ PRIOR TO DEVELOPMENT 22.5'

■ 24 HRS AFTER DEVELOPMENT 23.9'

QUANTITY OF MUD/WATER:

■ LOST DURING DRILLING 40 gallons

■ REMOVED PRIOR TO WELL INSERTION 0

■ LOST DURING THICK FLUID DISPLACEMENT 0

■ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

■ STANDING IN WELL 31 gallons

■ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 18 gallons

FIELD MEASUREMENT OF pH:

■ BEFORE DEVELOPMENT ① pH meter not working

■ DURING DEVELOPMENT ② 10.8 ③ 9.0

■ DURING DEVELOPMENT ④ 8.2 ⑤ 8.0

■ AFTER DEVELOPMENT ⑥ 7.6

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

■ BEFORE DEVELOPMENT ① 1000 μ mho

■ DURING DEVELOPMENT ② 720 μ mho ③ 490 μ mho

■ DURING DEVELOPMENT ④ 428 μ mho ⑤ 450 μ mho

■ AFTER DEVELOPMENT ⑥ 440 μ mho

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WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-17A

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL: 70'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:
No sediment on bottom of well following development

PHYSICAL CHARACTER OF REMOVED WATER:

☒ CLARITY Water cloudy

☒ COLOR Brown

☒ PARTICULATES clay and silt

☒ ODOR _____

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: use Grundfos
3-inch submersible pump and 5-Footer 3-inch bailer (1.8 gal).

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Move 3-inch
bailer up and down inside well.

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: ~ 5 to 10 gpm

ESTIMATED RECHARGE RATE: < 1 gpm

* QUANTITY OF FLUID/WATER REMOVED:

☒ INCREMENTAL Bailed well dry 6 times @ 49 gal

☒ TOTAL Total volume 294 gal

QUANTITY OF TIME FOR REMOVAL:

☒ INCREMENTAL 1

☒ TOTAL Development took place between
10/25/91 and 11/15/91.

* To develop well, evacuated well (pumped dry) 6 times with a minimum 4-hour recovery between pumping.

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW-18

DATE(S) OF WELL INSTALLATION: 10/28/91

DATE(S) OF WELL DEVELOPMENT: 11/12/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

■ PRIOR TO DEVELOPMENT 17.55'

■ 24 HRS AFTER DEVELOPMENT 17.50'

QUANTITY OF MUD/WATER:

■ LOST DURING DRILLING 20 gallons water

■ REMOVED PRIOR TO WELL INSERTION 0

■ LOST DURING THICK FLUID DISPLACEMENT 0

■ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

■ STANDING IN WELL 4.43 gal

■ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 7.32

FIELD MEASUREMENT OF pH:

■ BEFORE DEVELOPMENT 6.3

■ DURING DEVELOPMENT 6.2

■ DURING DEVELOPMENT 6.2

■ AFTER DEVELOPMENT 6.2

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

■ BEFORE DEVELOPMENT 265 μ mho

■ DURING DEVELOPMENT 309 μ mho

■ DURING DEVELOPMENT 310 μ mho

■ AFTER DEVELOPMENT 310 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-18

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL:
24.5'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:
No sediment in well following development

PHYSICAL CHARACTER OF REMOVED WATER:

■ CLARITY water starts slightly cloudy then clears

■ COLOR _____

■ PARTICULATES Fine sand, silt

■ ODOR Groundwater has a solvent odor; containerize all development water from MW-18

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: Use Grundfos 3-inch pump and 5-foot x 3-inch bailer.

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Move 3-inch Grundfos pump up and down in well.

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted.

TYPICAL PUMPING RATE: 5.0 gpm

ESTIMATED RECHARGE RATE: 0.7 gpm

QUANTITY OF FLUID/WATER REMOVED:

■ INCREMENTAL _____

■ TOTAL 140 gallons

QUANTITY OF TIME FOR REMOVAL:

■ INCREMENTAL _____

■ TOTAL 200 minutes

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW-19

DATE(S) OF WELL INSTALLATION: 10/23 - 10/24/91

DATE(S) OF WELL DEVELOPMENT: Start well development 10/27/91

STATIC WATER LEVEL FROM TOP OF WELL CASING: completed 12/7/91

■ PRIOR TO DEVELOPMENT 31.5'

■ 24 HRS AFTER DEVELOPMENT 30.3'

QUANTITY OF MUD/WATER:

■ LOST DURING DRILLING 0

■ REMOVED PRIOR TO WELL INSERTION 0

■ LOST DURING THICK FLUID DISPLACEMENT 0

■ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

■ STANDING IN WELL 4.56 gal gal

■ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 7.57 gal

FIELD MEASUREMENT OF pH:

■ BEFORE DEVELOPMENT ① 7.8

■ DURING DEVELOPMENT ② 9.6 ③ 7.7

■ DURING DEVELOPMENT ④ 8.0

■ AFTER DEVELOPMENT ⑤ 7.8

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

■ BEFORE DEVELOPMENT ① 191 μ mho

■ DURING DEVELOPMENT ② 219 μ mho ③ 200 μ mho

■ DURING DEVELOPMENT ④ 190 μ mho

■ AFTER DEVELOPMENT ⑤ 180 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-19

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL:

39.5'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:

No sediment on bottom of well.

PHYSICAL CHARACTER OF REMOVED WATER:

■ CLARITY water cloudy

■ COLOR light brown to brown

■ PARTICULATES Fine sand, silt, clay.

■ ODOR no odor

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: use Grundfos 3-inch

Submersible pump and 5-foot x 3-inch bailer

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Move 3-inch

bailer up and down in well

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: 4 gpm

ESTIMATED RECHARGE RATE: < 1 gpm

* QUANTITY OF FLUID/WATER REMOVED:

■ INCREMENTAL Bailer well dry 5 times @ 12.1 gal

■ TOTAL Total volume 60.5 gal

QUANTITY OF TIME FOR REMOVAL:

■ INCREMENTAL

■ TOTAL Development took place between
10/27/91 and 12/7/91.

* To develop well, evacuated well (pumped dry) 6 times
With a minimum 4-hour recovery between pumping.

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW 19A

DATE(S) OF WELL INSTALLATION: 11/27/91 - 12/2/91

DATE(S) OF WELL DEVELOPMENT: 12/6/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

☒ PRIOR TO DEVELOPMENT 30.20'

☒ 24 HRS AFTER DEVELOPMENT 30.20'

QUANTITY OF MUD/WATER:

☒ LOST DURING DRILLING 42.3 gal 0

☒ REMOVED PRIOR TO WELL INSERTION 15.7 gal 0

☒ LOST DURING THICK FLUID DISPLACEMENT 0

☒ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

☒ STANDING IN WELL 42.3 gal

☒ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 15.7 gal

FIELD MEASUREMENT OF pH:

☒ BEFORE DEVELOPMENT 10.0

☒ DURING DEVELOPMENT 9.2

☒ DURING DEVELOPMENT 9.0

☒ AFTER DEVELOPMENT 9.0

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

☒ BEFORE DEVELOPMENT 325 μ mho

☒ DURING DEVELOPMENT 360 μ mho

☒ DURING DEVELOPMENT 360 μ mho

☒ AFTER DEVELOPMENT 360 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW 19A

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL:

98.3'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:

No sediment on well bottom

PHYSICAL CHARACTER OF REMOVED WATER:

☒ CLARITY Water clear

☒ COLOR _____

☒ PARTICULATES Fine sand

☒ ODOR None

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: Grundfos 3-inch
submersible pump

DESCRIPTION OF SURGE TECHNIQUE, IF USED: lift pump up
and down in well

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: 1.5 gpm

ESTIMATED RECHARGE RATE: 1.5 gpm

QUANTITY OF FLUID/WATER REMOVED:

☒ INCREMENTAL _____

☒ TOTAL 320 ~~270~~ gallons

QUANTITY OF TIME FOR REMOVAL:

☒ INCREMENTAL _____

☒ TOTAL 180 minutes

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW-19B

DATE(S) OF WELL INSTALLATION: 11/8/91

DATE(S) OF WELL DEVELOPMENT: 11/10/91 start development

STATIC WATER LEVEL FROM TOP OF WELL CASING: 12/6/91 completed

■ PRIOR TO DEVELOPMENT 30.3'

■ 24 HRS AFTER DEVELOPMENT 30.23

QUANTITY OF MUD/WATER:

■ LOST DURING DRILLING 0

■ REMOVED PRIOR TO WELL INSERTION

■ LOST DURING THICK FLUID DISPLACEMENT 40 gal water 70 gal mud

■ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

■ STANDING IN WELL 15 gal

■ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 17 gal

FIELD MEASUREMENT OF pH:

■ BEFORE DEVELOPMENT ① 7.6 ⑤ 8.2

■ DURING DEVELOPMENT ② 7.8

■ DURING DEVELOPMENT ③ 8.2

■ AFTER DEVELOPMENT ④ 8.0

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

■ BEFORE DEVELOPMENT ① 340 μ mho ⑤ 320 μ mho

■ DURING DEVELOPMENT ② 370 μ mho

■ DURING DEVELOPMENT ③ 320 μ mho

■ AFTER DEVELOPMENT ④ 310 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-19B

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL:

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:
52.6'

PHYSICAL CHARACTER OF REMOVED WATER:

☒ CLARITY Water cloudy
☒ COLOR brown
☒ PARTICULATES silt
☒ ODOR none

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: used Grundfos
3-inch submersible pump and 5-foot x 3-inch bailer

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Move 3-inch bailer
up and down inside well

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: ~ 4 gpm

ESTIMATED RECHARGE RATE: ~ 1 gpm

QUANTITY OF FLUID/WATER REMOVED: *

☒ INCREMENTAL Bailed well dry 5 times @ 35 gallons
☒ TOTAL Total volume 175 gallons

QUANTITY OF TIME FOR REMOVAL:

☒ INCREMENTAL _____
☒ TOTAL Development took place between 10/25/91
and 11/21/91

* To develop well, well evacuated (pumped dry) 5 times with a minimum 4-hour recovery period.

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW-20

DATE(S) OF WELL INSTALLATION: 10/17 - 10/18/91

DATE(S) OF WELL DEVELOPMENT: 10/25/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

■ PRIOR TO DEVELOPMENT 33.1

■ 24 HRS AFTER DEVELOPMENT 33.0

QUANTITY OF MUD/WATER:

■ LOST DURING DRILLING 30 gallons bentonite slurry; 160 gallons water

■ REMOVED PRIOR TO WELL INSERTION 0

■ LOST DURING THICK FLUID DISPLACEMENT 0

■ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

■ STANDING IN WELL 24.1 gallons

■ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 18 gallons

FIELD MEASUREMENT OF pH:

■ BEFORE DEVELOPMENT 8.0

■ DURING DEVELOPMENT 250 gallons 470 u 7.2

■ DURING DEVELOPMENT 750 gallons 6.4

■ AFTER DEVELOPMENT 1200 gallons 6.4

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

■ BEFORE DEVELOPMENT 400 u mho

■ DURING DEVELOPMENT 250 gallons 470 u mho

■ DURING DEVELOPMENT 750 gallons 470 u mho

■ AFTER DEVELOPMENT 1200 gallons 470 u mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-20

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL: 67.1

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:
No sediment on bottom of well following development

PHYSICAL CHARACTER OF REMOVED WATER:

- ☒ CLARITY Water cloudy but cleared by end of development
- ☒ COLOR brown → clear
- ☒ PARTICULATES Fine sand
- ☒ ODOR none

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: use Grundfos
3-inch submersible pump

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Moved 3-inch
pump up and down length of well
screen

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: ~10 gpm

ESTIMATED RECHARGE RATE: max recharge rate >10 gpm

QUANTITY OF FLUID/WATER REMOVED:

- ☒ INCREMENTAL _____
- ☒ TOTAL 1200 gallons removed

QUANTITY OF TIME FOR REMOVAL:

- ☒ INCREMENTAL 110 minutes
- ☒ TOTAL _____

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL
WELL DESIGNATION: MW-21
DATE(S) OF WELL INSTALLATION: 10/9/91 - 10/11/91
DATE(S) OF WELL DEVELOPMENT: Start well development 10/24/91
STATIC WATER LEVEL FROM TOP OF WELL CASING: Completed 12/4/91
■ PRIOR TO DEVELOPMENT 15.0
■ 24 HRS AFTER DEVELOPMENT 14.6
QUANTITY OF MUD/WATER:
■ LOST DURING DRILLING 250 gallons of water added
■ REMOVED PRIOR TO WELL INSERTION 0
■ LOST DURING THICK FLUID DISPLACEMENT 0
■ ADDED DURING GRANULAR FILTER PLACEMENT 0
QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:
■ STANDING IN WELL 35.8 gallons
■ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 17 gallons
FIELD MEASUREMENT OF pH: To develop well, evacuate well 5 times with at least 4 ft recovery.
■ BEFORE DEVELOPMENT ① 10.2
■ DURING DEVELOPMENT ~~10.2~~ ② 9.8 - ③ 10.8
■ DURING DEVELOPMENT ④ 11.1
■ AFTER DEVELOPMENT ⑤ 10.2
FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:
■ BEFORE DEVELOPMENT ① 1100 μ mho
■ DURING DEVELOPMENT ② 500 μ mho
■ DURING DEVELOPMENT ③ 710 μ mho ④ 1410 μ mho
■ AFTER DEVELOPMENT ⑤ 1320 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-21

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL: 68.4'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:
No sediment on bottom of well following development

PHYSICAL CHARACTER OF REMOVED WATER:

- ☒ CLARITY Water very cloudy
- ☒ COLOR brown
- ☒ PARTICULATES silt & clay-size particles
- ☒ ODOR none

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: use Grundfos
3-inch submersible pump and 5-foot 3-inch bailer (1.8 gal).

DESCRIPTION OF SURGE TECHNIQUE, IF USED: _____
use 3-inch bailer moving rapidly
up and down.

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mount

TYPICAL PUMPING RATE: ~ 5 gallons / minute

ESTIMATED RECHARGE RATE: < 1 gpm

QUANTITY OF FLUID/WATER REMOVED:*

- ☒ INCREMENTAL Bailed well dry 5 times at 53 gallons
- ☒ TOTAL Total volume 264 gallons

QUANTITY OF TIME FOR REMOVAL:

- ☒ INCREMENTAL _____
- ☒ TOTAL Well development took place between
10/24/91 and 12/4/91.

* To develop well, well evacuated (pumped dry) 5 times with
a minimum 4-hour recovery between pumping

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW-22

DATE(S) OF WELL INSTALLATION: 10/29/91

DATE(S) OF WELL DEVELOPMENT: 11/12/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

■ PRIOR TO DEVELOPMENT 14.8'

■ 24 HRS AFTER DEVELOPMENT 14.8'

QUANTITY OF MUD/WATER:

■ LOST DURING DRILLING 10 gallons

■ REMOVED PRIOR TO WELL INSERTION 0

■ LOST DURING THICK FLUID DISPLACEMENT 0

■ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

■ STANDING IN WELL 8.62 gallons

■ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 14.3

FIELD MEASUREMENT OF pH:

■ BEFORE DEVELOPMENT 6.2

■ DURING DEVELOPMENT 6.3

■ DURING DEVELOPMENT 6.2

■ AFTER DEVELOPMENT 6.3

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

■ BEFORE DEVELOPMENT 830 μ mho

■ DURING DEVELOPMENT 890 μ mho

■ DURING DEVELOPMENT 892 μ mho

■ AFTER DEVELOPMENT 890 μ mho

3

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-22

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL:
29.5'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:

No sediment in well following development

PHYSICAL CHARACTER OF REMOVED WATER:

- ☒ CLARITY slightly started off cloudy but cleared up
- ☒ COLOR Red/Brown → clear
- ☒ PARTICULATES Fine sand, silt, clay
- ☒ ODOR no odor

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: Use 3-inch Grundfos submersible pump and 5-Foot x 3-inch bailer.

DESCRIPTION OF SURGE TECHNIQUE, IF USED: Move 3-inch pump up and down length of well screen

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: 5 gpm

ESTIMATED RECHARGE RATE: 1.2 gpm

QUANTITY OF FLUID/WATER REMOVED:

- ☒ INCREMENTAL _____
- ☒ TOTAL 165 gpm gallons

QUANTITY OF TIME FOR REMOVAL:

- ☒ INCREMENTAL _____
- ☒ TOTAL 135 minutes

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW-23

DATE(S) OF WELL INSTALLATION: 10/29/91

DATE(S) OF WELL DEVELOPMENT: 11/11/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

☒ PRIOR TO DEVELOPMENT 14.8'

☒ 24 HRS AFTER DEVELOPMENT 14.3

QUANTITY OF MUD/WATER:

☒ LOST DURING DRILLING 0

☒ REMOVED PRIOR TO WELL INSERTION 0

☒ LOST DURING THICK FLUID DISPLACEMENT 0

☒ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

☒ STANDING IN WELL 5.79 gal

☒ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 9.61 gal

FIELD MEASUREMENT OF pH:

☒ BEFORE DEVELOPMENT pH 5.8

☒ DURING DEVELOPMENT 5.8

☒ DURING DEVELOPMENT 5.8

☒ AFTER DEVELOPMENT 5.8

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

☒ BEFORE DEVELOPMENT 150 μ mho

☒ DURING DEVELOPMENT 160 μ mho

☒ DURING DEVELOPMENT 160 μ mho

☒ AFTER DEVELOPMENT 160 μ mho

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW-23DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL:
23.7'SCREEN LENGTH: 9.5'DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:
No sediment in well following development.

PHYSICAL CHARACTER OF REMOVED WATER:

- ☒ CLARITY water slightly cloudy
- ☒ COLOR red/brown
- ☒ PARTICULATES silt silt & clay
- ☒ ODOR no odor

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: use Grundfos 3-inch submersible pump and 5-Foot x 3-inch bailer.DESCRIPTION OF SURGE TECHNIQUE, IF USED: Move 3-inch pump up and down in wellHEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mountedTYPICAL PUMPING RATE: 1.7 gpmESTIMATED RECHARGE RATE: 1.7 gpm

QUANTITY OF FLUID/WATER REMOVED:

- ☒ INCREMENTAL _____
- ☒ TOTAL 170 gallons

QUANTITY OF TIME FOR REMOVAL:

- ☒ INCREMENTAL _____
- ☒ TOTAL 100 minutes

WELL DEVELOPMENT RECORD

PAGE 2 OF 2

WELL DESIGNATION: MW 24

DEPTH FROM TOP OF WELL CASING TO BOTTOM OF WELL:
19.7'

SCREEN LENGTH: 9.5'

DEPTH FROM TOP OF WELL CASING TO TOP OF SEDIMENT INSIDE WELL:

No sediment on bottom of well following development

PHYSICAL CHARACTER OF REMOVED WATER:

☒ CLARITY Water clear by end of development

☒ COLOR brown → clear

☒ PARTICULATES Fine sand, silt, clay

☒ ODOR none

TYPE AND SIZE/CAPACITY OF PUMP AND/OR BAILER: use Grundfos 3-
inch submersible pump and 5-foot x 3-inch bailer

DESCRIPTION OF SURGE TECHNIQUE, IF USED: move 3-inch
pump up and down in well

HEIGHT OF WELL CASING ABOVE GROUND SURFACE: Flush mounted

TYPICAL PUMPING RATE: 3.6 gpm

ESTIMATED RECHARGE RATE: 3.6 gpm

QUANTITY OF FLUID/WATER REMOVED:

☒ INCREMENTAL _____

☒ TOTAL 250 gallons removed

QUANTITY OF TIME FOR REMOVAL:

☒ INCREMENTAL _____

☒ TOTAL 70 minutes

WELL DEVELOPMENT RECORD

PAGE 1 OF 2

SITE DESIGNATION: Watertown MTL

WELL DESIGNATION: MW 24

DATE(S) OF WELL INSTALLATION: 10/30/91

DATE(S) OF WELL DEVELOPMENT: 11/11/91

STATIC WATER LEVEL FROM TOP OF WELL CASING:

☒ PRIOR TO DEVELOPMENT 9.4'

☒ 24 HRS AFTER DEVELOPMENT 9.2'

QUANTITY OF MUD/WATER:

☒ LOST DURING DRILLING 30 gallons water

☒ REMOVED PRIOR TO WELL INSERTION 0

☒ LOST DURING THICK FLUID DISPLACEMENT 0

☒ ADDED DURING GRANULAR FILTER PLACEMENT 0

QUANTITY OF FLUID IN WELL PRIOR TO DEVELOPMENT:

☒ STANDING IN WELL 20 gallon 6.7 gal

☒ CONTAINED IN SATURATED ANNULUS (30% POROSITY) 12 gal

FIELD MEASUREMENT OF pH:

☒ BEFORE DEVELOPMENT 5.2

☒ DURING DEVELOPMENT 100 gal 5.8

☒ DURING DEVELOPMENT 200 gal 5.8

☒ AFTER DEVELOPMENT 250 gal 5.8

FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE:

☒ BEFORE DEVELOPMENT 160 umho

☒ DURING DEVELOPMENT 100 gal 190 umho

☒ DURING DEVELOPMENT 200 180 umho

☒ AFTER DEVELOPMENT 250 gal 180 umho

Appendix E

Slug Test Data

SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-15 RISING HEAD

Test No.: 1 Step No.: 1

Total well depth: 29.8 feet
Depth to water: 15.7 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 14.1 feet

Rc= 0.267 feet
rw= 0.4167 feet

From type curve:
Where $Le/rw = 24$
C= 2.3

$\ln(Re/rw) = 2.4499$

Bouwer and Rice Results:

=====

r squared = 0.9896

Hydraulic conductivity = 1.135 ft/day

Effective radial distance
of slug test = 4.8 feet

Hvorslev's Results:

=====

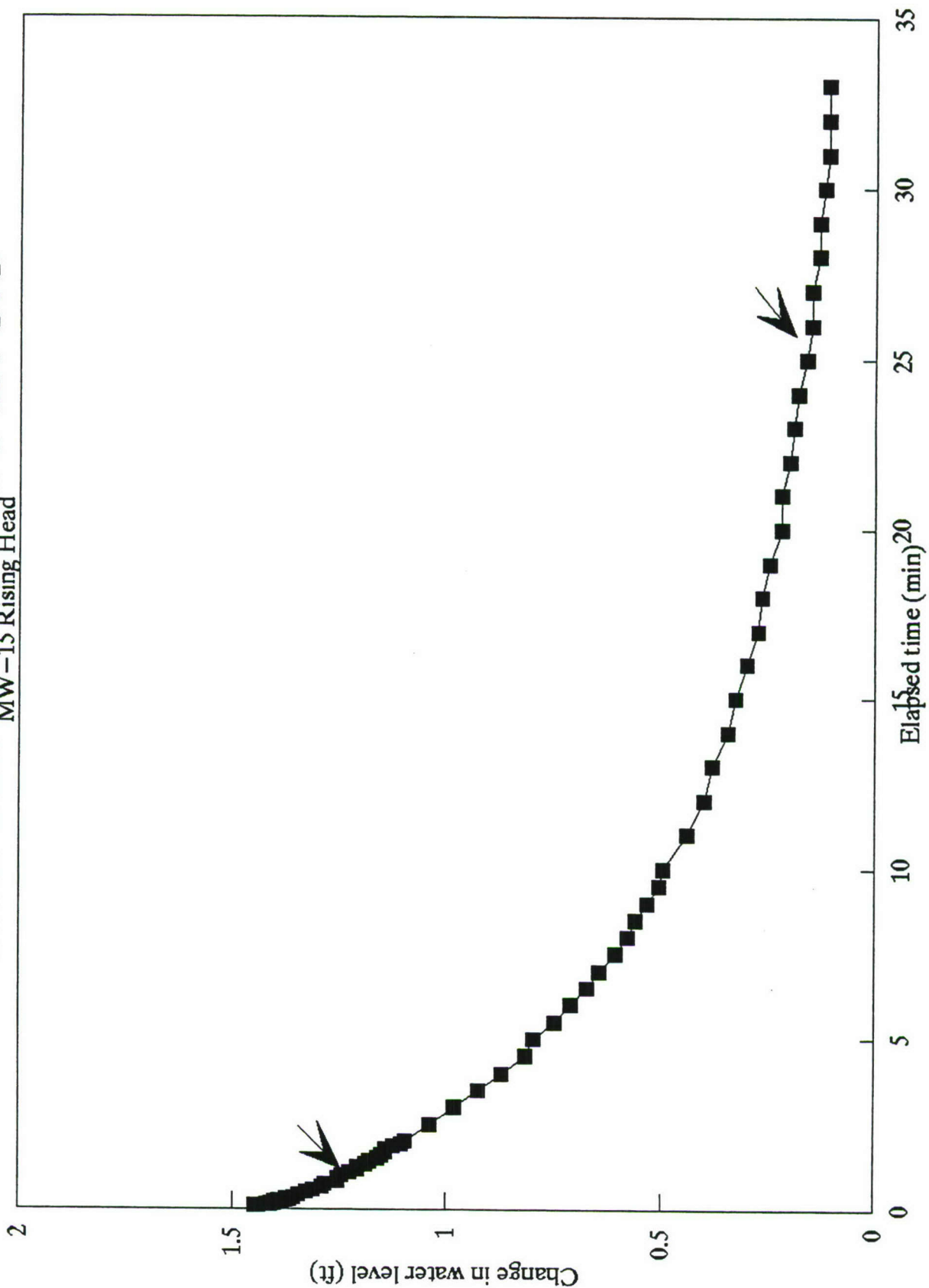
Time lag (Tb) = 10.1587 (minutes)

Hydraulic conductivity = 1.831 ft/day

To print results type "Alt T" simultaneously

MTL SLUG TEST ANALYSIS

MW-15 Rising Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-15A FALLING HEAD

Test No.: 1 Step No.: 1

Total well depth: 61.75 feet
Depth to water: 24.99 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 36.76 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:
Where $L_e/rw = 24$
C= 2.3

$\ln(R_e/rw) = 2.9293$

Bouwer and Rice Results:

=====

r squared = 0.9997

Hydraulic conductivity = 0.090 ft/day

Effective radial distance
of slug test = 7.8 feet

Hvorslev's Results:

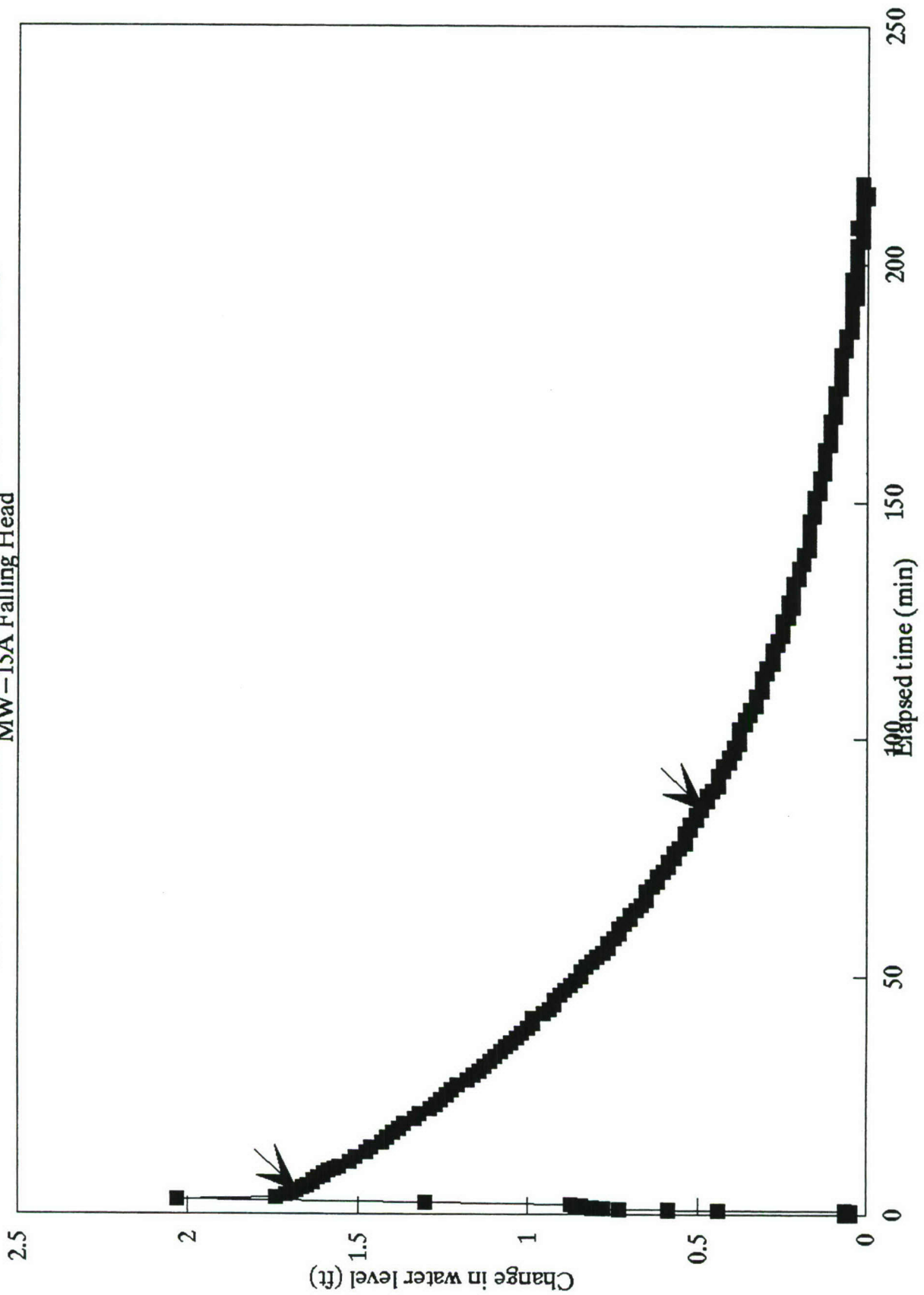
=====

Time lag (Tb) = 67.8694 (minutes)

Hydraulic conductivity = 0.121 ft/day

MTL SLUG TEST ANALYSIS

MW-15A Falling Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-15A RISING HEAD

Test No.: 1 Step No.: 1

Total well depth: 61.75 feet
Depth to water: 24.99 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 36.76 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:
Where $Le/rw = 24$
C= 2.3

$\ln(Re/rw) = 2.9293$

Bouwer and Rice Results:

=====

r squared = 0.9982

Hydraulic conductivity = 0.059 ft/day

Effective radial distance
of slug test = 7.8 feet

Hvorslev's Results:

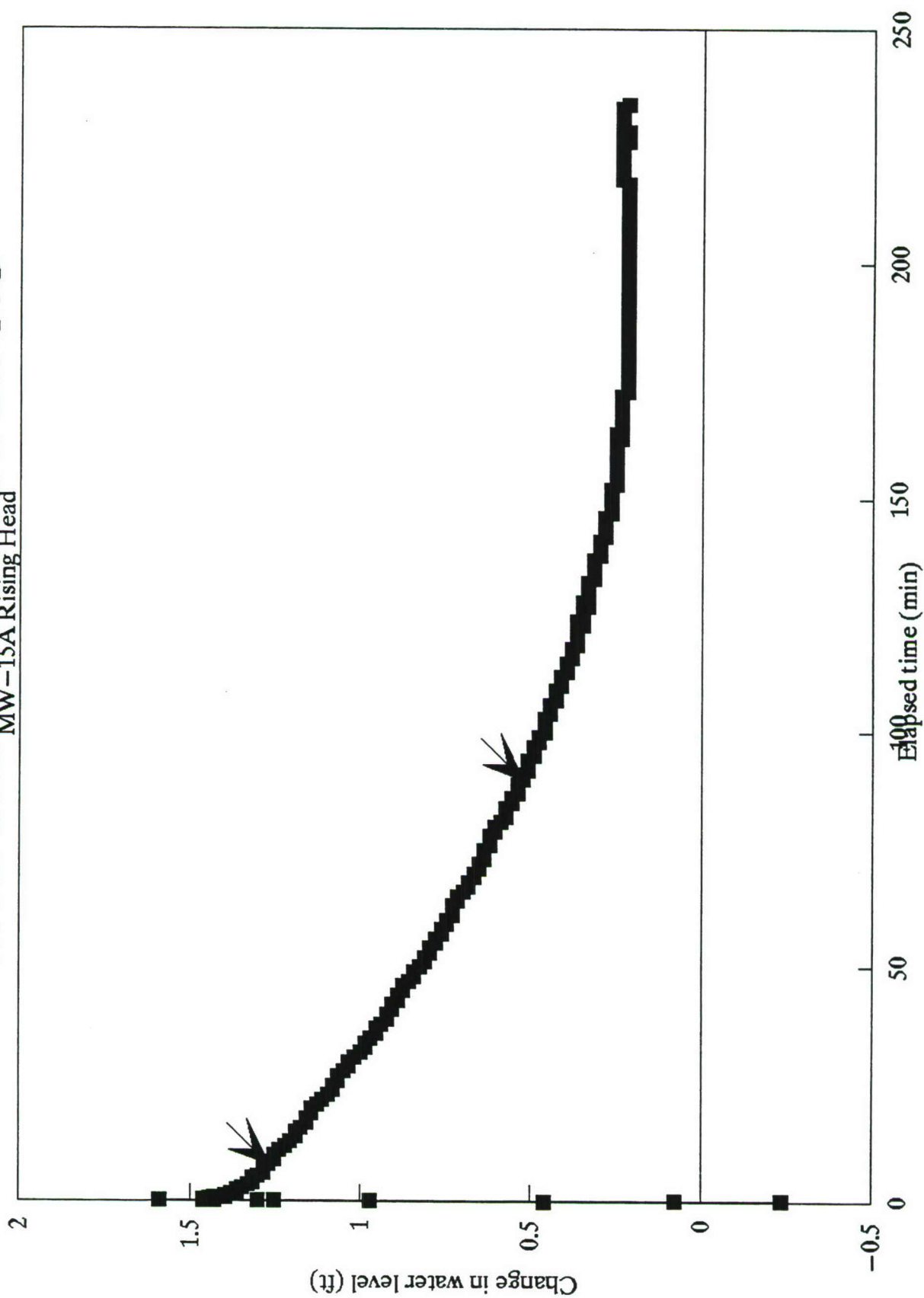
=====

Time lag (Tb) = 103.4326 (minutes)

Hydraulic conductivity = 0.079 ft/day

MTL SLUG TEST ANALYSIS

MW-15A Rising Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-16 RISING HEAD

Test No.: 1 Step No.: 1

Total well depth: 25 feet
Depth to water: 12.2 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 12.8 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:
Where $Le/rw = 24$
C= 2.3

$\ln(Re/rw) = 2.3980$

Bouwer and Rice Results:

=====

r squared = 0.9912

Hydraulic conductivity = 3.865 ft/day

Effective radial distance
of slug test = 4.6 feet

Hvorslev's Results:

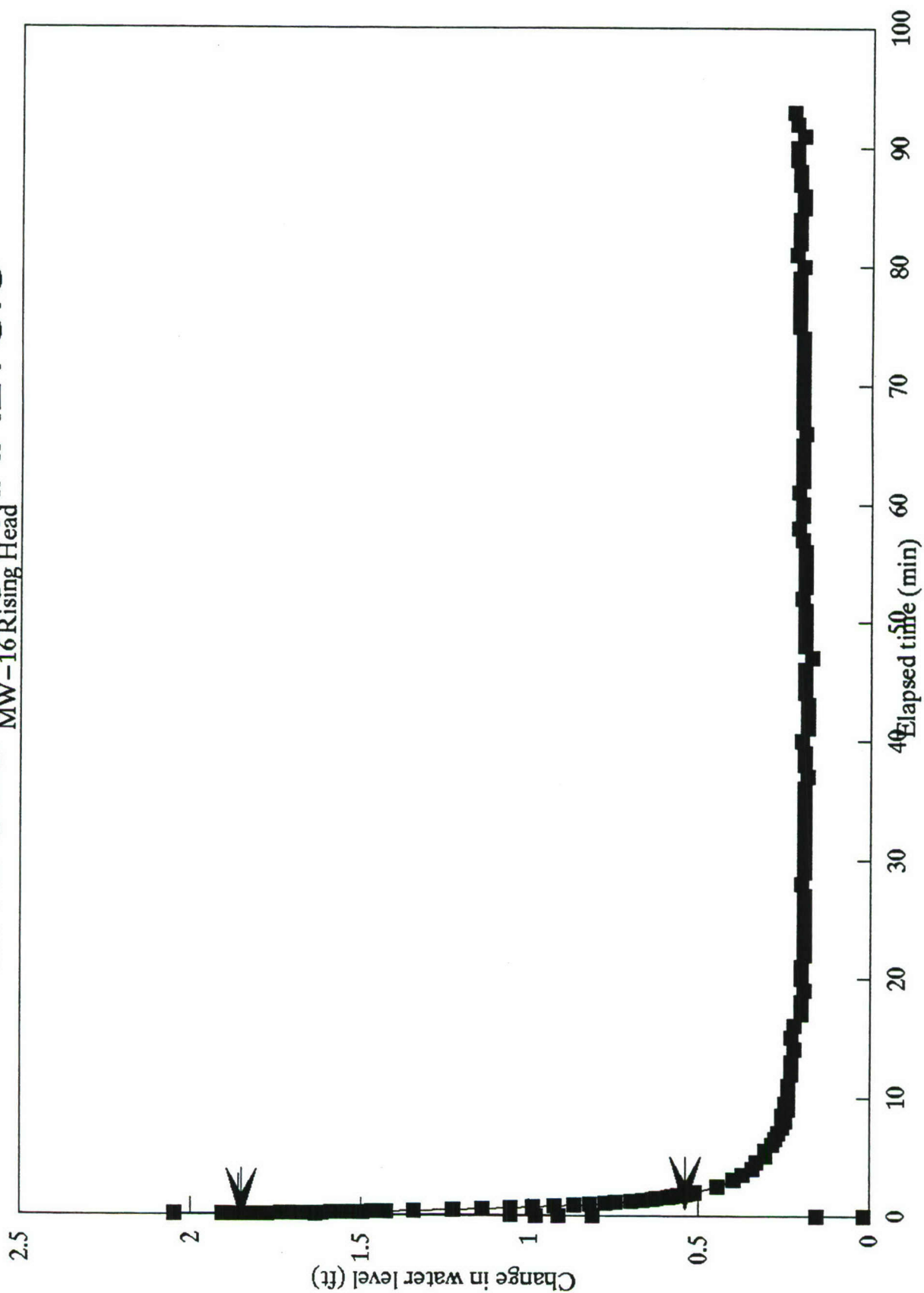
=====

Time lag (Tb) = 1.2351 (minutes)

Hydraulic conductivity = 6.630 ft/day

MTL SLUG TEST ANALYSIS

MW-16 Rising Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-16A FALLING HEAD

Test No.: 1 Step No.: 1

Total well depth: 34.6 feet
Depth to water: 19.68 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 14.92 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:
Where $L_e/rw = 24$
C= 2.3

$$\ln(R_e/rw) = 2.4798$$

Bouwer and Rice Results:

=====

$$r^2 = 0.9934$$

$$\text{Hydraulic conductivity} = 0.785 \text{ ft/day}$$

$$\begin{aligned} \text{Effective radial distance} \\ \text{of slug test} &= 5.0 \text{ feet} \end{aligned}$$

Hvorslev's Results:

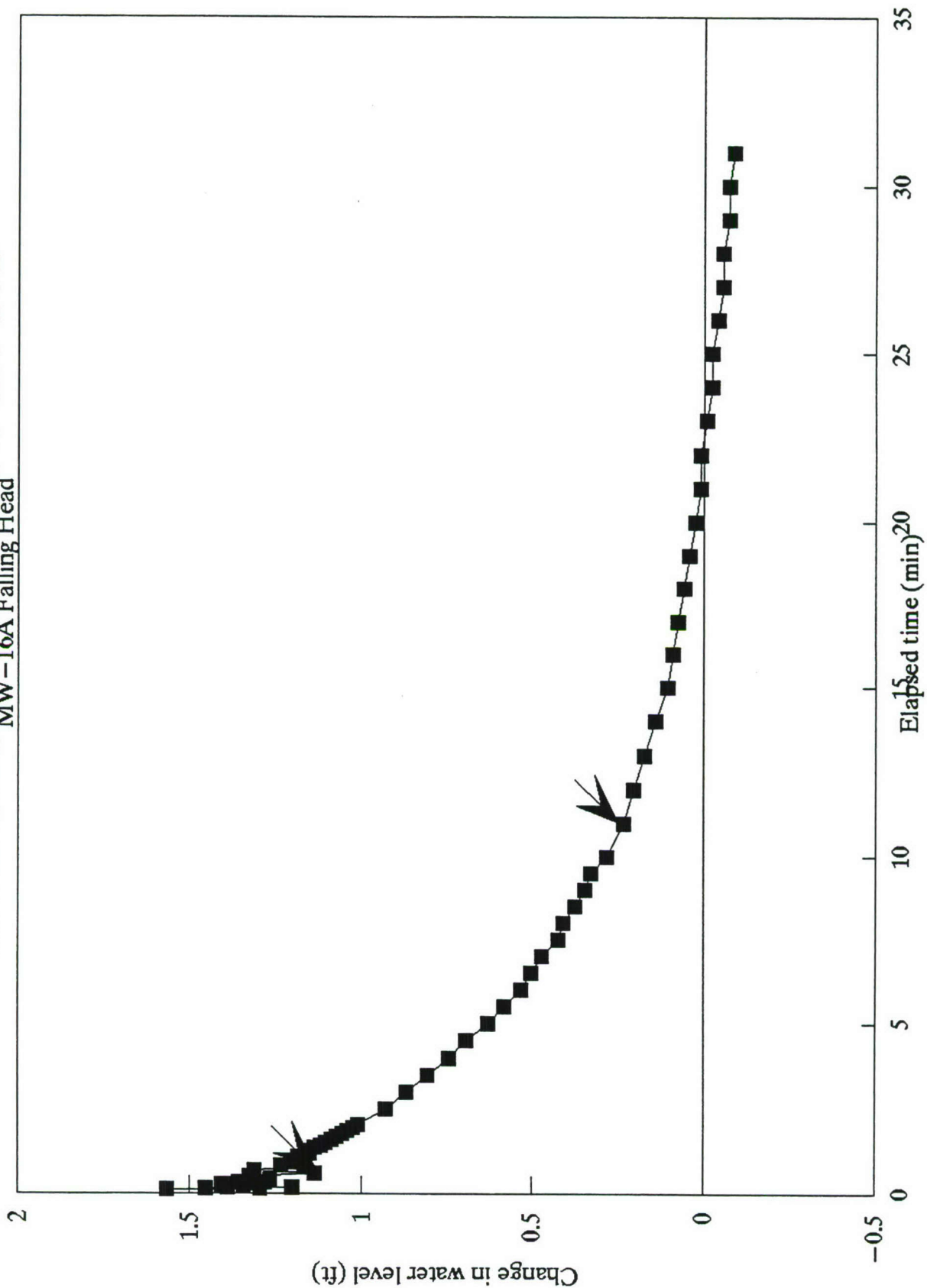
=====

$$\text{Time lag (Tb)} = 5.6014 \text{ (minutes)}$$

$$\text{Hydraulic conductivity} = 1.462 \text{ ft/day}$$

MTL SLUG TEST ANALYSIS

MW - 16A Falling Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-16A RISING HEAD

Test No.: 1 Step No.: 1

Total well depth: 34.6 feet
Depth to water: 19.68 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 14.92 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:

Where $L_e/rw = 24$
C= 2.3

$\ln(Re/rw) = 2.4798$

Bouwer and Rice Results:

=====

r squared = 0.9868

Hydraulic conductivity = 0.609 ft/day

Effective radial distance
of slug test = 5.0 feet

Hvorslev's Results:

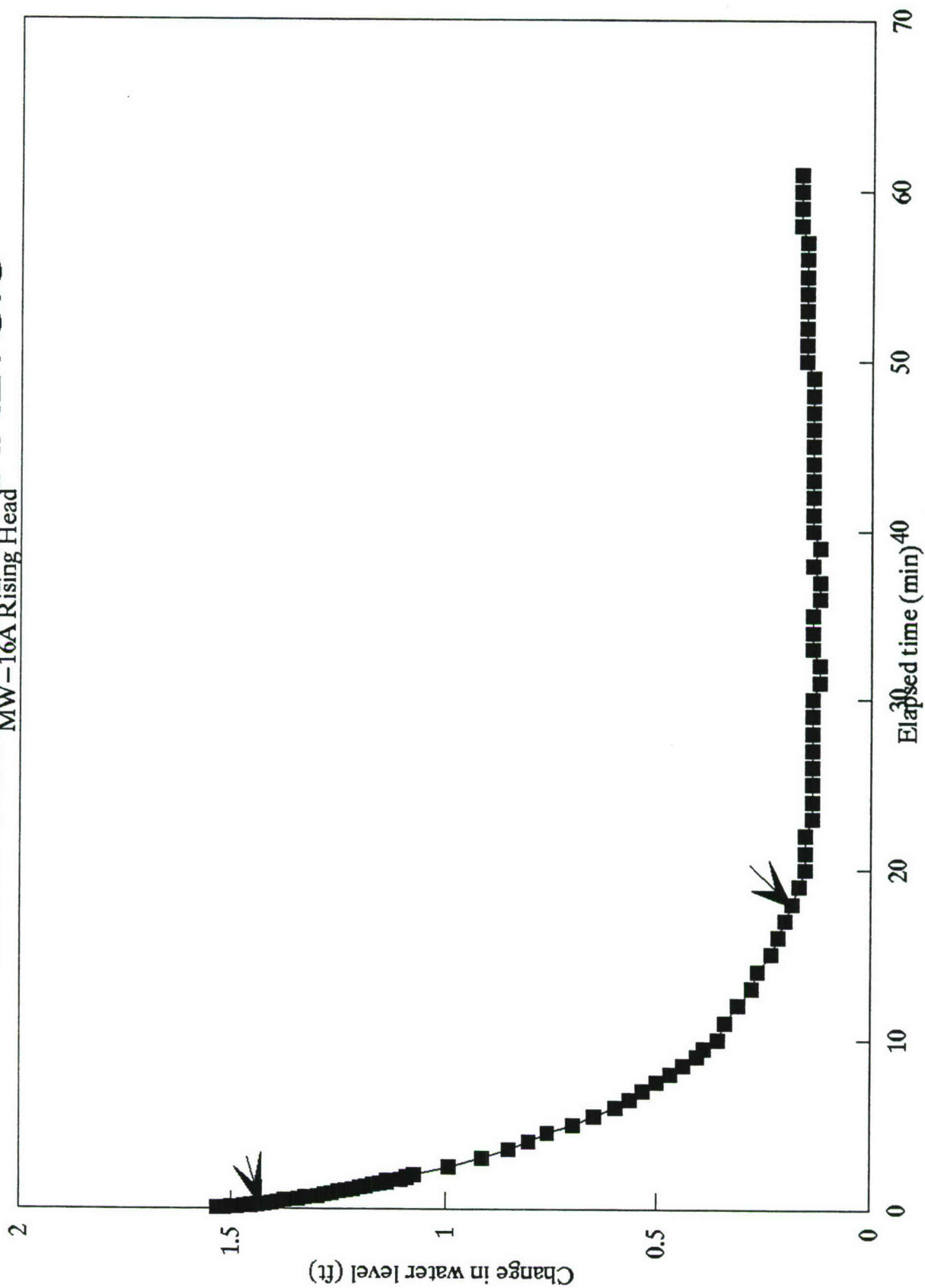
=====

Time lag (Tb) = 7.5039 (minutes)

Hydraulic conductivity = 1.091 ft/day

MTL SLUG TEST ANALYSIS

MW-16A Rising Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-17

Test No.: 1 Step No.: 1

Total well depth: 30 feet
Depth to water: 19.94 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 10.06 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:

Where $L_e/rw = 24$
C= 2.3

$\ln(Re/rw) = 2.2660$

Bouwer and Rice Results:

=====

r squared = 0.9810

Hydraulic conductivity = 0.329 ft/day

Effective radial distance
of slug test = 4.0 feet

Hvorslev's Results:

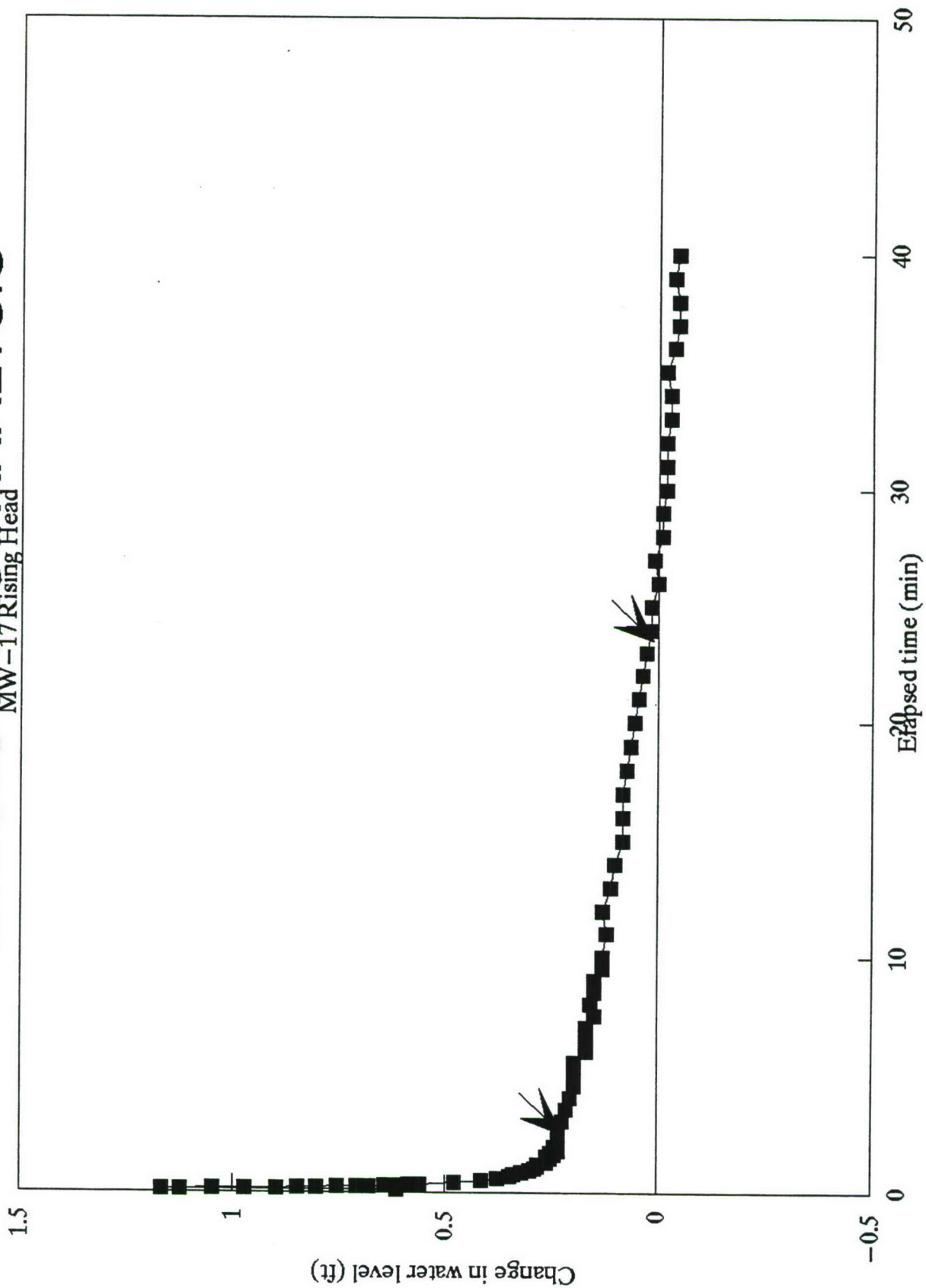
=====

Time lag (Tb) = 16.0801 (minutes)

Hydraulic conductivity = 0.509 ft/day

MTL SLUG TEST ANALYSIS

MW-17 Rising Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-17A FALLING HEAD

Test No.: 1 Step No.: 1

Total well depth: 70 feet
Depth to water: 24.28 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 45.72 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:
Where $L_e/rw = 24$
C= 2.3

$\ln(R_e/rw) = 3.0305$

Bouwer and Rice Results:

=====

r squared = 0.9988

Hydraulic conductivity = 0.042 ft/day

Effective radial distance
of slug test = 8.6 feet

Hvorslev's Results:

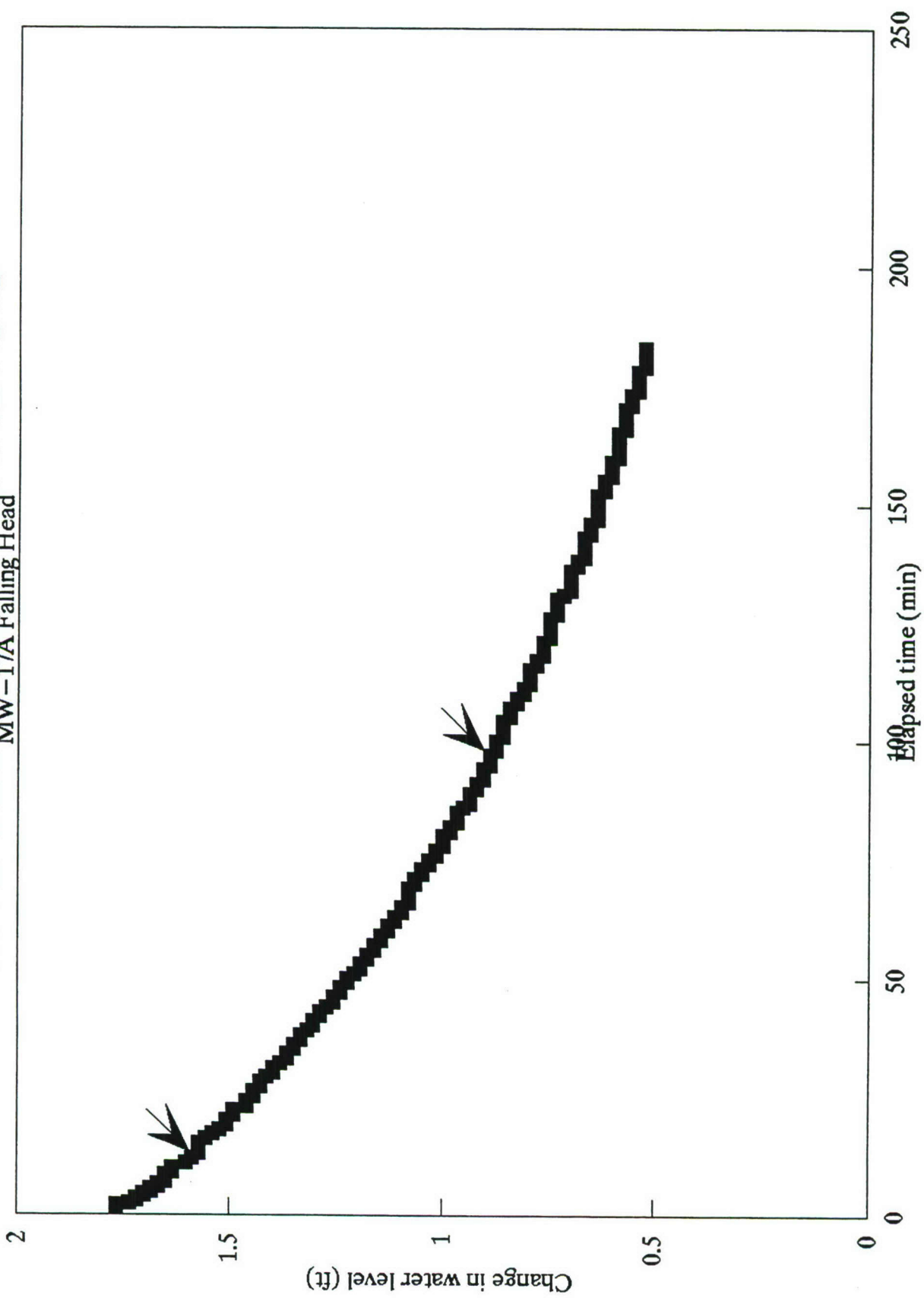
=====

Time lag (Tb) = 164.8273 (minutes)

Hydraulic conductivity = 0.050 ft/day

MTL SLUG TEST ANALYSIS

MW-17A Falling Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-19 RISING HEAD

Test No.: 1 Step No.: 1

Total well depth: 39.5 feet
Depth to water: 30.04 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 9.46 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:
Where $Le/rw = 24$
C= 2.3

$\ln(Re/rw) = 2.2316$

Bouwer and Rice Results:

=====

r squared = 0.9988

Hydraulic conductivity = 0.932 ft/day

Effective radial distance
of slug test = 3.9 feet

Hvorslev's Results:

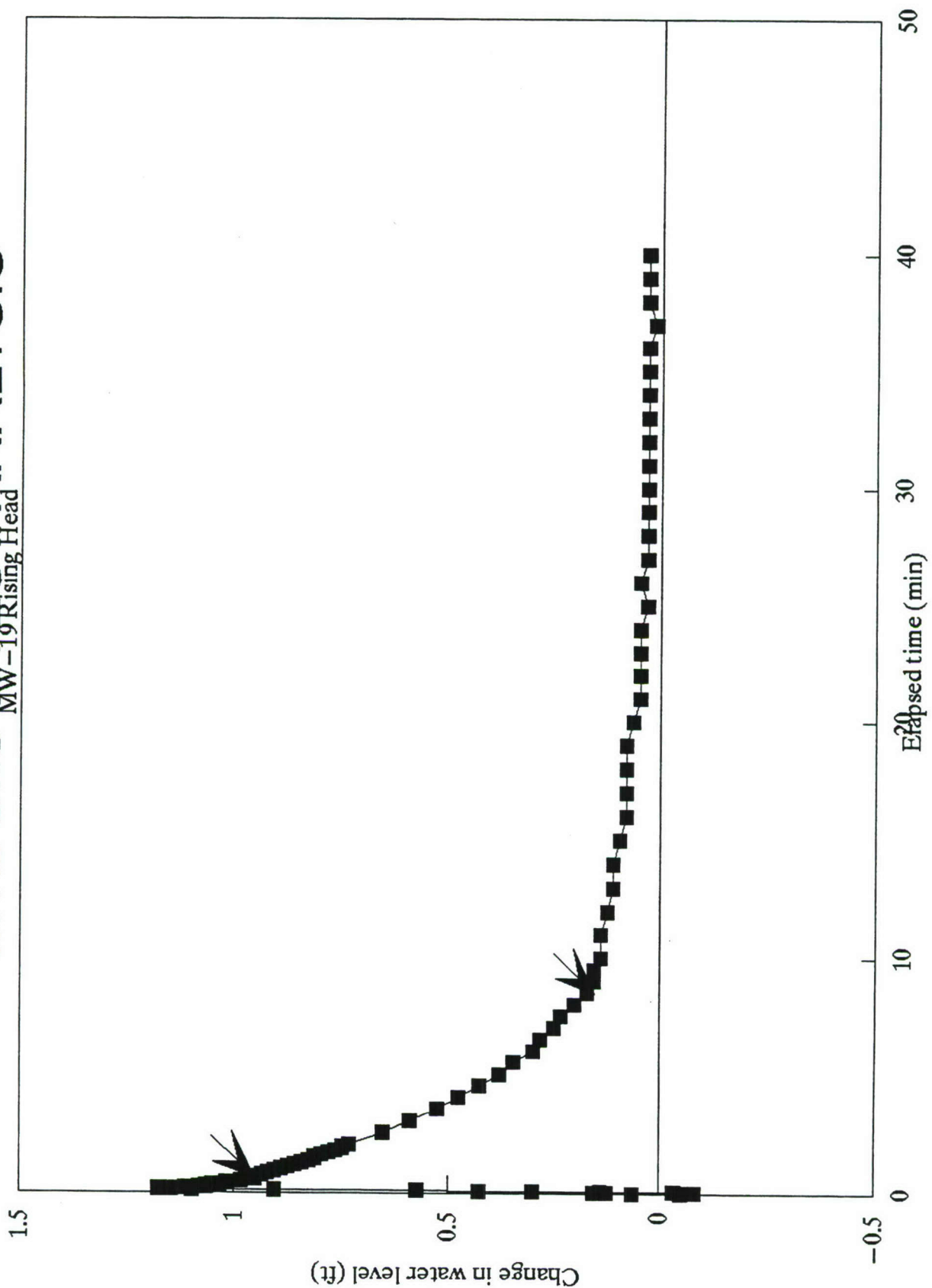
=====

Time lag (Tb) = 5.3018 (minutes)

Hydraulic conductivity = 1.545 ft/day

MTL SLUG TEST ANALYSIS

MW-19 Rising Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-19A FALLING HEAD

Test No.: 1 Step No.: 1

Total well depth: 98.3 feet
Depth to water: 30.3 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 68 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:
Where $Le/rw = 24$
C= 2.3

$$\ln(Re/rw) = 3.2079$$

Bouwer and Rice Results:

=====

r squared = 0.8594

Hydraulic conductivity = 62.289 ft/day

Effective radial distance
of slug test = 10.3 feet

Hvorslev's Results:

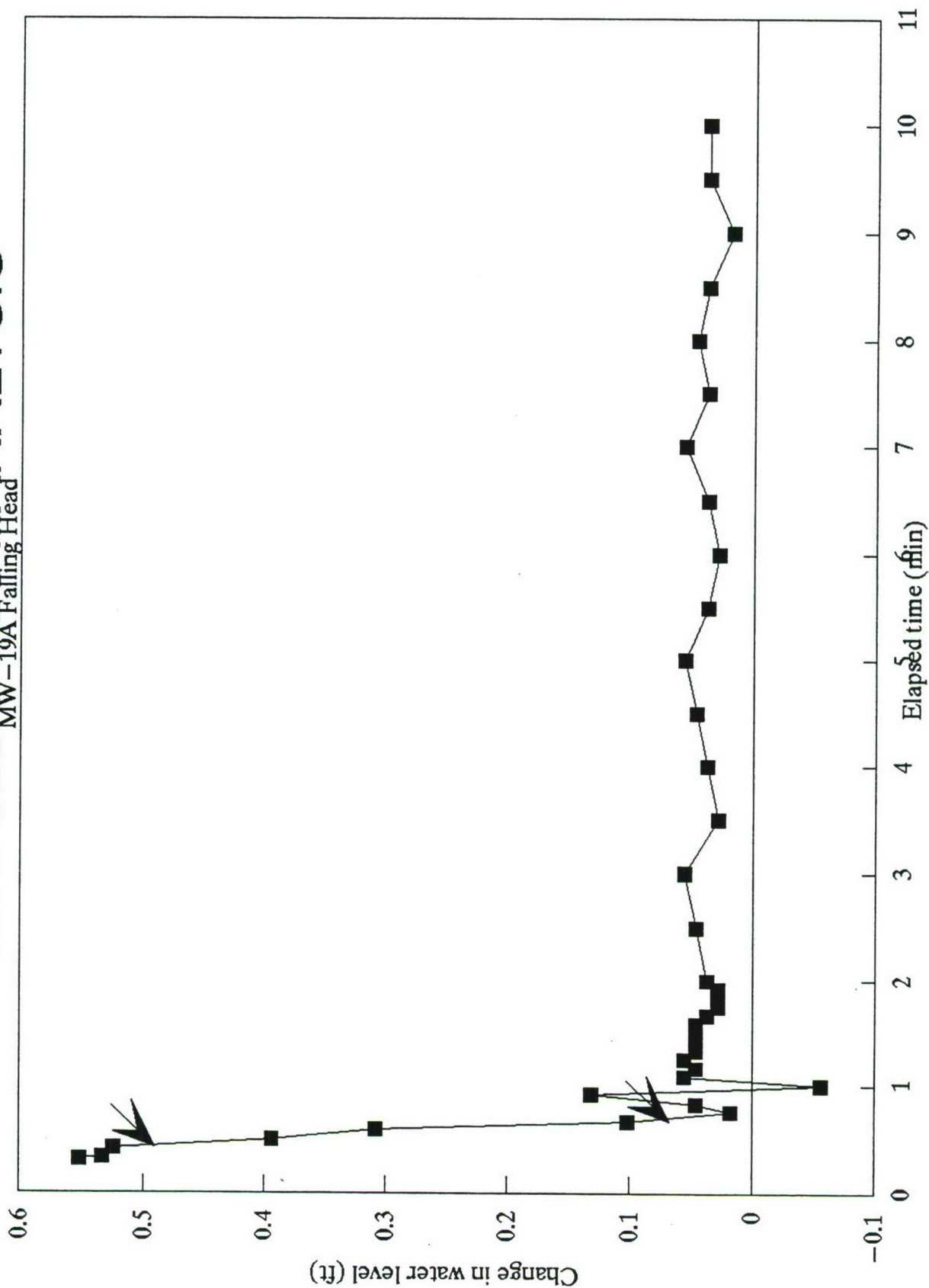
=====

Time lag (Tb) = 0.5663 (minutes)

Hydraulic conductivity = 14.461 ft/day

MTL SLUG TEST ANALYSIS

MW-19A Falling Head



SLUG TEST ANALYSIS

Site location: WATERTOWN MTL
Well ID: MW-19A RISING HEAD

Test No.: 1 Step No.: 1

Total well depth: 89.3 feet
Depth to water: 30.3 feet
Screen length (Le): 10 feet
Well diameter: 4 inches
Borehole diameter: 10 inches
Sat. thickness (Lw): 59 feet

Rc= 0.1667 feet
rw= 0.4167 feet

From type curve:
Where $Le/rw = 24$
C= 2.3

$\ln(Re/rw) = 3.1454$

Bouwer and Rice Results:

=====

r squared = 0.9959

Hydraulic conductivity = 77.241 ft/day

Effective radial distance
of slug test = 9.7 feet

Hvorslev's Results:

=====

Time lag (Tb) = 0.2067 (minutes)

Hydraulic conductivity = 39.615 ft/day

Appendix F

Groundwater Samples

Field Sampling Logs

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: C-2	
Purge Date: 12-14-91		Casing Vol. (gals): 5.71	
Purge Time: 0813 to 1235		Vol. Purged (gals): 75 gal	
Sample Date: 12/14/91		Sample Method: Teflon bailer	
Sample Time: 1410			
Elevation:		Total Well Depth: 39.4	
Water Level: 30.65		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 15°C	
Weather Conditions: Partly sunny, dry, air temp. in 20s.			
Sample Appearance: Water dark colored			
Sampler Comments: VOCs detected, all purge water drummed.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with Johnson/Kewit pump	
pH:	20 gallons	50 gallons	70 gallons
Sp. Cond.: (umhos)	650 umho pH - 6.7	550 umho pH - 6.4	550 umho pH - 6.4
Lab Comments:			
Sampler Name: (print) Tim Warr		Signature: Tim Warr	

GROUNDWATER SAMPLING FORM

Facility Name: <u>Watertown MTL</u>		Sample Point ID: <u>C-3</u>	
Purge Date: <u>12/13/91</u>		Casing Vol. (gals): <u>17.5</u>	
Purge Time: <u>0950 to 1117</u>		Vol. Purged (gals): <u>177 gallons</u>	
Sample Date: <u>12/13/91</u>		Sample Method: <u>Tetlon bailer</u>	
Sample Time: <u>1540</u>			
Elevation:		Total Well Depth: <u>34.6'</u>	
Water Level: <u>7.96'</u>		Stick-Up:	
GW Elevation:		Sample Temp. (°C): <u>12°C</u>	
Weather Conditions: <u>Heavy rain, air temp 40's.</u>			
Sample Appearance: <u>Sample water clear</u>			
Sampler Comments: <u>No RAD or VOCs detected, purge water discharged on ground.</u>			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X):		Procedure/Proportions: <u>Purge well with Johnson/Kelk Pump</u>	
pH:	<u>Start</u>	<u>purge 85 gallons</u>	<u>purge 175 gallons</u>
Sp. Cond.: (umhos) pH	<u>295 umho</u> <u>7.2</u>	<u>290 umho</u> <u>6.8</u>	<u>290 umho</u> <u>6.8</u>
Lab Comments:			
<div style="display: flex; justify-content: space-between;"> <div> <p>Sampler Name: (print) <u>Tim Warr</u> <u>Stephen L. L...</u></p> </div> <div> <p>Signature: <u>Tim Warr</u></p> </div> </div>			

GROUNDWATER SAMPLING FORM			
Facility Name: <i>Waterston MTL</i>		Sample Point ID: <i>MW1</i>	
Purge Date: <i>12/10/91</i>		Casing Vol. (gals): <i>7.06</i>	
Purge Time: <i>1 hr. 15 min</i>		Vol. Purged (gals): <i>92.2 gal</i>	
Sample Date: <i>12/10/91</i>		Sample Method: <i>Bailer</i>	
Sample Time: <i>1030</i>			
Elevation:		Total Well Depth: <i>16.5'</i>	
Water Level: <i>5.78'</i>		Stick-Up:	
GW Elevation:		Sample Temp. (°C):	
Weather Conditions: <i>Sunny, 40's</i>			
Sample Appearance: <i>clear</i>			
Sampler Comments:			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X): <i>1 quart 45gal 95gal</i>		Procedure/Proportions: <i>purged 95 gal/hrs with Johnson-Kirk 2" pump</i>	
pH:	<i>7.0 7.0 6.6</i>		
Sp. Cond.: (umhos)	<i>370 450 450</i>		
Lab Comments:			
Sampler Name: (print) <i>Tim Warr</i>		Signature: <i>Tim Warr</i>	

*well screened in silty, fine sand, clays
silt.*

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTH		Sample Point ID: MW-2	
Purge Date: 12/10/91		Casing Vol. (gals):	
Purge Time: 1 hr. 10 min. ^{start}		Vol. Purged (gals): 65	
Sample Date: 12/10/91		Sample Method: bailer	
Sample Time: 1415			
Elevation:		Total Well Depth: 16.2'	
Water Level: 8.84'		Stick-Up:	
GW Elevation:		Sample Temp. (°C):	
Weather Conditions: Sunny, 40's			
Sample Appearance: Slightly cloudy			
Sampler Comments:			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions:	
1 equal 3 gal 65 gal		pumped 65	
7.4 7.6 7.4		gallons with Johnson-Keeck 2" pump	
pH:			
1 equal 30 gal 65 gal			
Sp. Cond.: (umhos)			
260 270 270			
Lab Comments:			
Sampler Name: (print) Tim Warr			
		Signature: [Signature]	

Well screened in silty clay.

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-3	
Purge Date: 12/12/91		Casing Vol. (gals): 2.3 gal	
Purge Time: 0930 to 1045		Vol. Purged (gals): Pump well dry 2 times	
Sample Date: 12/12/91		Sample Method: Teflon bailer	
Sample Time: 1300			
Elevation:		Total Well Depth: 25.9	
Water Level: 22.4		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 18.0°C	
Weather Conditions: Partly cloudy, air temp in low 50's.			
Sample Appearance: Sample water clear			
Sampler Comments: No RAD or Vol detected, purge water discharged on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Pumped well with Johnson/Keck Pump	
pH:	Start	Evacuate once	Evacuate twice
Sp. Cond.: (umhos)	900 umho 6.5	900 umho 6.5	950 umho 6.8
Lab Comments:			
<div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div> <p>Sampler Name: (print) <u>Tim Watt</u></p> <p><u>Stephen L. Watt</u></p> </div> <div> <p>Signature: <u>Tim Watt</u></p> </div> </div>			

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW-4	
Purge Date: 12/12/91		Casing Vol. (gals): 4.0	
Purge Time: 0855 - 1605		Vol. Purged (gals): Pump well dry two times	
Sample Date: 12/13/91		Sample Method: Teflon bailer	
Sample Time: 0845			
Elevation:		Total Well Depth: 34.7	
Water Level: 28.65		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 17°C	
Weather Conditions: Partly cloudy air temp ~ low 50s.			
Sample Appearance: Sample clear			
Sampler Comments: No RAD or VA detected, purge water discharged on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X):		Procedure/Proportions: Pumped well with Johnson/Keck Pump	
pH:	Start	Evacuate once	Evacuate twice
Sp. Cond.: (umhos)	440 6.7	480 6.7	440 6.7
Lab Comments:			
Sampler Name: (print) Tim Warr		Signature: Tim Warr	

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW-5	
Purge Date: 12-14-91		Casing Vol. (gals): 6.66	
Purge Time: 1130 to 1220		Vol. Purged (gals): 88 gallons	
Sample Date: 12-14-91		Sample Method: Teflon bailer	
Sample Time: 1400			
Elevation:		Total Well Depth: 19.0'	
Water Level: 8.80'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 16.9°C	
Weather Conditions: Partly sunny, dry; air temp 20s.			
Sample Appearance: High suspended iron concentration.			
Sampler Comments: No VOCs or RAD detected, purge water released on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pump	
pH:	Begin pumping	Pump 60 gallons	Pump 90 gallons
Sp. Cond.: (umhos)	115 umhos pH 4.4	109 umhos pH 5.2	105 umhos pH 5.2
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW-6	
Purge Date: 12/12/91		Casing Vol. (gals): 5.14	
Purge Time: 1130 to 1221		Vol. Purged (gals): 68	
Sample Date: 12/12/91		Sample Method: Teflon bailer	
Sample Time: 1355			
Elevation:		Total Well Depth: 15.0'	
Water Level: 7.13'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 11°C	
Weather Conditions: Partly cloudy, air temp in low 50s.			
Sample Appearance: High suspended iron concentration.			
Sampler Comments: No RAD or VOCs detected, purge water discharged on grade.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with Johnson/Keeck Pump	
pH:	start	33 gallons	68 gallons
Sp. Cond.: (umhos)	700 umhos pH - 6	900 umhos pH - 5.6	900 umhos pH - 5.6
Lab Comments:			
Sampler Name: (print) Tim Warr		Signature: Tim Warr	

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-7	
Purge Date: 12/13/91		Casing Vol. (gals): 4.3	
Purge Time: 1140 to 1227		Vol. Purged (gals): 60 gallons	
Sample Date: 12/13/91		Sample Method: Teflon bailer	
Sample Time: 1615			
Elevation:		Total Well Depth: 38.0	
Water Level: 31.4		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 15°C	
Weather Conditions: Heavy rain, air temp in 40s.			
Sample Appearance: Sample water clear			
Sampler Comments: No RAD or VOCs detected, purge water discharged on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with Johnson/Kerk Pump	
pH:	purge 1/2 gal	purge 27 gal	purge 57 gal
Sp. Cond.: (umhos)	130 umhos pH-6.2	130 umhos pH-6.2	130 umhos pH-6.2
Lab Comments:			
Sampler Name: (print) Tim Warr		Signature: Tim Warr (cc)	

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW-8	
Purge Date: 12-13-91		Casing Vol. (gals): 5.4 gallons	
Purge Time: 0845 - 370		Vol. Purged (gals): 71.4	
Sample Date: 12-14-91		Sample Method: Teflon bailer	
Sample Time: 0810			
Elevation:		Total Well Depth: 41.0	
Water Level: 32.7		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 14.1°C	
Weather Conditions: Heavy rain air temp 40s			
Sample Appearance: Sample water clear			
Sampler Comments: No VOLs or RAD detected, purge water released on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pump.	
pH:	30 gallons	50 gallons	70 gallons
Sp. Cond.: (umhos)	410 umho pH - 7.2	400 umho pH - 6.4	400 umho pH - 6.4
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-9	
Purge Date: 12/15/92		Casing Vol. (gals): 6.05 gal	
Purge Time: 0915 to 1015		Vol. Purged (gals): 80 gallons	
Sample Date: 12/16/92		Sample Method: Teflon bailer	
Sample Time: 1050			
Elevation:		Total Well Depth: 23.5'	
Water Level: 14.24'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 12.5°C	
Weather Conditions: Partly sunny, dry, air temp in 20s.			
Sample Appearance:			
Sampler Comments: No VOCs or RAD detected, purge water released on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with Johnson/Keeck pump.	
pH:	begin purge	40 gal	80 gal
Sp. Cond.: (umhos)	310 umho pH - 6.4	290 umho pH - 6.4	295 umho pH - 6.4
Lab Comments:			
<div> <div>Sampler Name: (print) Tim Warr</div> <div>Signature: Tim Warr</div> </div>			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-10	
Purge Date: 12/10/91 - 12/11/91		Casing Vol. (gals): 6.3	
Purge Time: 12/10 1505 to 12/11 1440		Vol. Purged (gals): Purge well dry three times	
Sample Date: 12/11/91		Sample Method: Teflon bailer	
Sample Time: 1610			
Elevation:		Total Well Depth: 18.0'	
Water Level: 8.37'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 13°C	
Weather Conditions: Slightly cloudy, air temp in 40's.			
Sample Appearance: Sample orange, suspended solids.			
Sampler Comments: No RAD or VOCs detected, purge water discharged on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X):		Procedure/Proportions: Pumped well with Johnson Keck Pump	
*pH:	Evacuate once	Evacuate twice	Evacuate three times
Sp. Cond.: (umhos)	170 umhos pH 7.2	220 umhos 380 umhos 6.6 6.8	600 285 700 6.6 6.8 6.4
Lab Comments:			
Sampler Name: (print) Tim Warr Signature: Tim Warr sc			

Well screened in medium sand and clayey silt.

* pH and specific conductance failed to stabilize following three evacuations of well; however, sample collected with approval of on-site THAMA QA/QC team.

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-11	
Purge Date: 12/14/91 (Saturday)		Casing Vol. (gals): 6.7	
Purge Time: 1300 to 1415		Vol. Purged (gals): 88 gallons	
Sample Date: 12/14/91		Sample Method: Teflon bailer	
Sample Time: 1445			
Elevation:		Total Well Depth: 15.0	
Water Level: 4.7'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 15.1°C	
Weather Conditions: Partly sunny, dry, air temp in 20s.			
Sample Appearance: Purge water cloudy, sample clear			
Sampler Comments: No VOCs or RAD detected, purge water released on ground			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pumps	
pH:	Pump 30 gallons	Pump 60 gallons	Pump 90 gallons
Sp. Cond.: (umhos)	220 umho pH-5.8	181 umho pH-5.8	181 umho pH-6.0
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-12	
Purge Date: 12/15/91		Casing Vol. (gals): 4.00	
Purge Time: 1200 to 1207		Vol. Purged (gals): 4 52 gal	
Sample Date: 12/16/91		Sample Method: Teflon bailer	
Sample Time: 1230			
Elevation:		Total Well Depth: 38.0	
Water Level: 31.87		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 13°	
Weather Conditions: Partly sunny, dry, air temp in 20s.			
Sample Appearance:			
Sampler Comments: No VOCs or RAD detected, purge water released on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with Johnson/Kerk pump	
pH:	begin purge	25 gallon	50 gallon
Sp. Cond.: (umhos)	1000 umhos pH - 6.8	700 umhos pH - 7.0	1000 umhos pH - 7.0
Lab Comments:			
<div> <div>Sampler Name: (print) Tim Warr</div> <div>Signature: Tim Warr</div> </div>			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-13	
Purge Date: 12/11/91		Casing Vol. (gals): 64	
Purge Time: 1050 → 1515 1510		Vol. Purged (gals): 84	
Sample Date: 12/11/91		Sample Method: Teflon bailer	
Sample Time: 1515			
Elevation:		Total Well Depth: 21.5'	
Water Level: 11.76'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 13°C	
Weather Conditions: Slightly Cloudy, air temp 40's			
Sample Appearance: Sample water clear			
Sampler Comments: No RAD or VOC detected, purge water discharged on gnd.			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X):		Procedure/Proportions: Pumped well with Johnson/Keck Pump	
pH:	Start pumping	41 gallons	85 gallons
Sp. Cond.: (umhos)	1000 umhos 64	1050 umhos 64	1050 umhos /
Lab Comments:			
Sampler Name: (print) Tim Warr Signature: Tim Warr			

Well screened in fine to coarse sand.

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW-14	
Purge Date: 12-10-91		Casing Vol. (gals): 6.23 gallons	
Purge Time: 1030 to 1055		Vol. Purged (gals): 82.0 gal	
Sample Date: 12-10-91		Sample Method: Teflon bailer	
Sample Time: 1100			
Elevation:		Total Well Depth: 25.0'	
Water Level: 15.46'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 15.1°C	
Weather Conditions: Sunny 50s			
Sample Appearance: Sample water clear			
Sampler Comments: No Vols or Rdd detected, purge water dumped on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X):		Procedure/Proportions:	
3 gal	6 gal	82 gal	Purge well with 3-inch Grundfos pump.
pH: 7.2	7.3	7.2	
Sp. Cond.: 329 µmho (umhos)	310 µmho	310 µmho	
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor Well screened clayey silt.			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-15	
Purge Date: 12/13/91		Casing Vol. (gals): 9.4 gal	
Purge Time: 1020 to 1230		Vol. Purged (gals): 124 gal	
Sample Date: 12/14/91		Sample Method: Teflon bailer	
Sample Time: 0900			
Elevation:		Total Well Depth: 29.8	
Water Level: 15.4'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 14.0 °C	
Weather Conditions: Cloudy, light rain air temp 40 s.			
Sample Appearance: Purge water cloudy, sample clear.			
Sampler Comments: No VOCs or RAD detected, purge water released on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pump.	
pH:	Begin pumping	Pump 40 gallons	Pump 120 gallons
Sp. Cond.: (umhos)	3110 umho pH 7.3	2800 umho pH 7.4	2750 umho pH 7.4
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW-15A	
Purge Date: 12-10-91		Casing Vol. (gals): 24.4	
Purge Time: 1400 to 1200		Vol. Purged (gals): Pump well dry twice	
Sample Date: 12-10-91		Sample Method: Teflon bailer	
Sample Time: 1615			
Elevation:		Total Well Depth: 61.9	
Water Level: 24.6'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 15.0°C	
Weather Conditions: Sunny 40s			
Sample Appearance: sligh sample slightly cloudy			
Sampler Comments: No Vals or RAD detected, purge water dumped on ground			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X): Start at pump dry #1		Procedure/Proportions: Purged well with 3-inch pump dry #2 Grundfos: Pumps	
pH: 11	10.0	10.0	
Sp. Cond.: 1100 µmho (µmhos)	850 µmho	850 µmho	
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-16	
Purge Date: 12/15/91		Casing Vol. (gals): 8.35	
Purge Time: 0900 to 1050		Vol. Purged (gals): 109	
Sample Date: 12/16/91		Sample Method: Teflon bailer	
Sample Time: 0810			
Elevation:		Total Well Depth: 25.0	
Water Level: 12.22		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 14.8°C	
Weather Conditions: Cloudy air temp in 20s.			
Sample Appearance: Sample clear			
Sampler Comments: No RAD or VOCs detected, purge water released on ground			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pump.	
pH:	Pump 30 gallons	Pump 60 gallons	Pump 110 gallons
Sp. Cond.: (umhos)	148 umho pH - 6.5	150 umho pH - 6.4	150 umho pH - 6.4
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM

Facility Name: <u>Watertown MTL</u>		Sample Point ID: <u>MW-16A</u>	
Purge Date: <u>12/15/91</u>		Casing Vol. (gals): <u>10.3</u>	
Purge Time: <u>0850 - 1100</u>		Vol. Purged (gals): <u>Equivalent well time</u>	
Sample Date: <u>12/16/91</u>		Sample Method: <u>Teflon bailer</u>	
Sample Time: <u>0820</u>			
Elevation:		Total Well Depth: <u>34.6</u>	
Water Level: <u>18.85</u>		Stick-Up:	
GW Elevation:		Sample Temp. (°C): <u>12.1°C</u>	
Weather Conditions: <u>Cloudy, air temp in 20s.</u>			
Sample Appearance: <u>Sample clear</u>			
Sampler Comments: <u>No VOCs or RAD detected, purge water released on ground.</u>			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X):		Procedure/Proportions: <u>Purge well with 3-inch Grundfos pump.</u>	
pH:	<u>Purge one</u>	<u>Purge two</u>	<u>Recharge water</u>
Sp. Cond.: (umhos)	<u>340 umho</u> <u>pH - 7.0</u>	<u>341 umho</u> <u>pH - 6.8</u>	<u>340 umho</u> <u>pH - 7.0</u>
Lab Comments:			
Sampler Name: (print) <u>Stephen Lawlor</u> Signature: <u>Stephen Lawlor</u>			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-17	
Purge Date: 12/11/91		Casing Vol. (gals): 6.92	
Purge Time: 1040 + 1230		Vol. Purged (gals): 91.2	
Sample Date: 12/11/91		Sample Method: Teflon bailer	
Sample Time: 1400			
Elevation:		Total Well Depth: 30.0'	
Water Level: 19.4'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 19.6°C	
Weather Conditions: Sunny air temp 50s			
Sample Appearance: Purge water cloudy, sample clear.			
Sampler Comments: No VOCs or RAD detected, purge water dumped on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pump	
pH:	30 gallons	60 gallons	90 gallons
Sp. Cond.: (umhos)	321 umho pH - 6.7	340 umho pH - 6.6	340 umho pH - 6.6
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW 17A	
Purge Date: 12/11/91		Casing Vol. (gals): 30.2 gallons	
Purge Time: 1130 to 1630		Vol. Purged (gals): Pump well dry twice 60 gallons	
Sample Date: 12/12/91		Sample Method: teflon bailer	
Sample Time: 0930			
Elevation:		Total Well Depth: 70.0'	
Water Level: 23.8 Ft		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 15.9°C	
Weather Conditions: Sunny 50°s-air temp			
Sample Appearance: Sample clear			
Sampler Comments: No VOCs or Rad detected, purge water dumped			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pump	
pH:	1.5 gallon	Evacuate once	Evacuate twice
Sp. Cond.: (umhos)	480 umho pH-9.0	480 umho pH-9.0	475 umho pH-9.2
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-18	
Purge Date: 12/11/91 Wednesday		Casing Vol. (gals): 5.3 gallons	
Purge Time: 1515 to 1600		Vol. Purged (gals): 70.1 gallons	
Sample Date: 12-12-91		Sample Method: Teflon bailer	
Sample Time: 0845			
Elevation:		Total Well Depth: 24.5'	
Water Level: 16.35'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 15.4°C	
Weather Conditions: Slightly Cloudy air temp 40's			
Sample Appearance: Sample water clear			
Sampler Comments: Volatiles detected in purge water water containerized.			
Unable To Obtain Sample (X):		Reason: Purge well with 3-inch Grundfos pumps	
Sample Compositing (X):		Procedure/Proportions:	
pH:	1.0 gallons	18 gallons	60 gallons
Sp. Cond.: (umhos)	221 umho pH-8.6	255 umho pH-8.6	255 umho pH-8.6
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW-19	
Purge Date: 12/15/91		Casing Vol. (gals): 4.0 gal	
Purge Time: 1130 to 1225		Vol. Purged (gals): Purge well dry twice (14 gallons)	
Sample Date: 12/16/91		Sample Method: Teflon bailer	
Sample Time: 1120			
Elevation:		Total Well Depth: 38.0	
Water Level: 31.87		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 12°C	
Weather Conditions: Partly sunny, dry, air temp in 20s.			
Sample Appearance:			
Sampler Comments: No VOCs or RAD detected, purge water released on ground			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with Johnson/Kerk Pump	
pH:	start purging	purge once	purge twice
Sp. Cond.: (umhos)	155 umho pH - 6.8	160 umho pH - 6.8	160 umho pH - 7.0
Lab Comments:			
Sampler Name: (print) Tim Warr Signature: Tim Warr sc			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-19A	
Purge Date: 12-12-91		Casing Vol. (gals): 44.5	
Purge Time: 1330 to 1440		Vol. Purged (gals): 304	
Sample Date: 12-12-91		Sample Method: Teflon bailer	
Sample Time: 1500			
Elevation:		Total Well Depth: 99.3'	
Water Level: 30.2'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 14.4°C	
Weather Conditions: partly cloudy 40s			
Sample Appearance: Purge water and sample water clear.			
Sampler Comments: No Vals or RAD detected, purge water released on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pump.	
pH:	150 gallons	240 gallons	300 gallons
Sp. Cond.: (umhos)	351 umhos pH-7.6	351 umhos pH-7.6	351 umhos pH 7.4
Lab Comments:			
<div> <div>Sampler Name: (print) Stephen Lawlor</div> <div>Signature: Stephen Lawlor</div> </div>			

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW-19B	
Purge Date: 12-12-91 (Thurs)		Casing Vol. (gals): 15.2	
Purge Time: 1135 to 1500		Vol. Purged (gals): Pump well dry twice (30 gallons)	
Sample Date: 12-12-91		Sample Method: Teflon bailer	
Sample Time: 1550			
Elevation:		Total Well Depth: 53.5	
Water Level: 30.2		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 14.1°C	
Weather Conditions: Partly cloudy air temp ~ low 50s.			
Sample Appearance: Purge water cloudy, sample slightly cloudy.			
Sampler Comments: Purge water released on ground; no VOCs or RAD.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pump.	
pH:	Begin Pumping	Evaluate once	Evaluate twice
Sp. Cond.: (umhos)	381 umhos pH - 7.4	370 umho pH - 7.5	350 umhos pH - 7.4
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-20	
Purge Date: 12-13-91		Casing Vol. (gals): 22.6	
Purge Time: 0920 to 1010		Vol. Purged (gals): 193 gal	
Sample Date: 12-13-91		Sample Method: Teflon bailer	
Sample Time: 1530			
Elevation:		Total Well Depth: 67.1	
Water Level: 32.47		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 12.5°C	
Weather Conditions: Heavy rain, air temp 40s.			
Sample Appearance: Sample water clear.			
Sampler Comments: No Vol or RAD detected, purge water released underground.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pumps	
pH:	30 gallons	90 gallons	190 gallons
Sp. Cond.: (umhos)	414 umho pH-6.2	429 umho pH-6.2	429 umho pH-6.4
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-21	
Purge Date: 12-10-91		Casing Vol. (gals):	
Purge Time: 0830 to 1430		Vol. Purged (gals): Pump well dry twice, 30 gallons, pump	
Sample Date: 12-10-91		Sample Method: Bailer (tetlon)	
Sample Time: 1440			
Elevation:		Total Well Depth: 68.9'	
Water Level: 14.75'		Stick-Up: ✓	
GW Elevation:		Sample Temp. (°C): 14.5°C	
Weather Conditions: Sunny ~50°F			
Sample Appearance: purge water - cloudy, sample clear			
Sampler Comments: No VOC or RAD detected - purge water dumped			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X):		Procedure/Proportions:	
Start 40 gallons End		Purged well with Grundfos pump 3" pump	
pH:	11.6	11.2	11.6
Sp. Cond.: (umhos)	720 umho	500 umho	490 umho
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor Well screened in fine-grained material.			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-22	
Purge Date: 12-15-91		Casing Vol. (gals): 10.1 gal	
Purge Time: 1210 to 1310		Vol. Purged (gals): 133	
Sample Date: 12-16-91		Sample Method: Teflon bailer	
Sample Time: 0945			
Elevation:		Total Well Depth: 28.5'	
Water Level: 13.05'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 14.3°C	
Weather Conditions: Cloudy, air temp in 20s			
Sample Appearance: Sample clear			
Sampler Comments: No RAD or VOC detected, purge water released on ground.			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X):		Procedure/Proportions: Purge well with 3 inch Grundfos pump.	
pH:	Pump 30 gal	Pump 70 gal	Pump 140 gal
Sp. Cond.: (umhos)	700 umho pH-6.5	710 umho pH-6.5	700 umho pH-6.5
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM

Facility Name: Watertown MTL		Sample Point ID: MW-23	
Purge Date: 12-15-91		Casing Vol. (gals): 7.1	
Purge Time: 1315 - 1450		Vol. Purged (gals): 94	
Sample Date: 12-16-91		Sample Method: Teflon bailer	
Sample Time: 1005			
Elevation:		Total Well Depth: 23.7	
Water Level: 12.79		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 14.0°C	
Weather Conditions: Cloudy, air temp in 20s.			
Sample Appearance: Purge water slightly cloudy			
Sampler Comments: Vals detected in water, therefore purge water containerized.			
Unable To Obtain Sample (X):		Reason:	
Sample Composited (X):		Procedure/Proportions: Purge well with 3-inch Grundfos pump	
pH:	Pump 30 gal	Pump 60 gal	Pump 90 gal
Sp. Cond.: (umhos)	235 umho pH - 6.2	239 umho pH - 6.2	237 umho pH - 6.2
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

GROUNDWATER SAMPLING FORM			
Facility Name: Watertown MTL		Sample Point ID: MW-24	
Purge Date: 12/15/91		Casing Vol. (gals): 10.7	
Purge Time: 1125 to 1200		Vol. Purged (gals): 134	
Sample Date: 12/16/91		Sample Method: Teflon bailer	
Sample Time: 0910			
Elevation:		Total Well Depth: 24.6	
Water Level: 8.2'		Stick-Up:	
GW Elevation:		Sample Temp. (°C): 14.1°C	
Weather Conditions: Cloudy, air temp in 20s			
Sample Appearance: Purge water and sample water clear.			
Sampler Comments: No RAD or VOC detected, purge water discharged on ground			
Unable To Obtain Sample (X):		Reason:	
Sample Compositing (X): 40		Procedure/Proportions: Purge well with 3-inch Grundfos pump.	
pH:	pump 40 gallons	pump 90 gallons	pump 135 gallons
Sp. Cond.: (umhos)	174 umhos pH - 6.2	171 umhos pH - 6.1	170 umhos pH - 6.1
Lab Comments:			
Sampler Name: (print) Stephen Lawlor Signature: Stephen Lawlor			

Appendix G
Field Sampling Logs

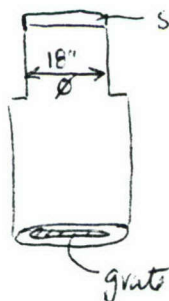
APPENDIX G.1

**CISTERN, TANK, SUMP, AND DRY WELL SAMPLES
FIELD SAMPLING LOGS**

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL- Southeast Corner of Arsenne
2. Sample I.D.: 000 SED 01 Date: 11/10/91 Time: 0800
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # ~~Unknown~~ C ^{13mm} 1/4/92 Frame # 14, 15, 16, 17, 18, 19, 20 ^{RAW 1/4/92}
5. Analyses Requested:
- | | | | | | |
|---------------|-------------------------------------|------------|-------------------------------------|----------------------|-------------------------------------|
| Volatiles | <input checked="" type="checkbox"/> | Cyanide | <input type="checkbox"/> | RAD Gross Alpha/Beta | <input checked="" type="checkbox"/> |
| Semivolatiles | <input checked="" type="checkbox"/> | Pesticides | <input checked="" type="checkbox"/> | RAD Isotopic | <input checked="" type="checkbox"/> |
| Metals | <input checked="" type="checkbox"/> | PCB | <input checked="" type="checkbox"/> | Other | <input type="checkbox"/> |
6. Preservatives: 4°C Other:
7. Sampling Method:
- | | | |
|----------------------|------------------|----------------------|
| <u>T-Shelby Tube</u> | CR-Coring Tube | <u>P-Petit Ponar</u> |
| <u>TR-Trowel</u> | A-Auger Cuttings | WK-Wildco KB Corer |
| SS-Split Spoon | Other: | |
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): _____
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) _____
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

Very little sediment sample to take. Samples had a lot of brick and concrete chips mixed with dirt. Sample is located in a dry well, near the gate at Beacon Street.



Heavy grate made it difficult to get a good Ponar sample.

1520.ad

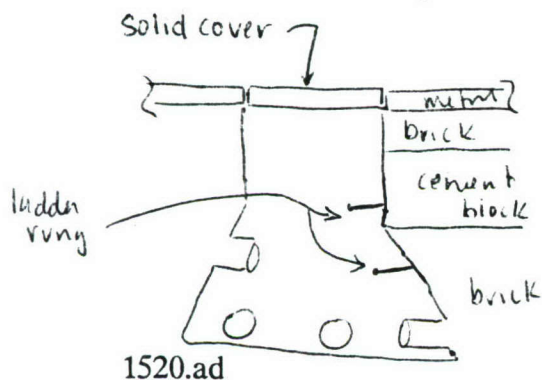
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

16

1. Site MTL- Building 36
2. Sample I.D.: 36SED01 Date: 11/10/91 Time: 1055
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # Unknown C ^{1/4/92} Frame # 19 ²⁰ 18 ^{1/4/92}
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:



Sump is located outside NW corner
of Bldg 36 (Same as 36SW01)
Odor similar to raw sewage.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site MTL - Building 36
2. Sample I.D.: 36 SW01 Date: 11/7/91 Time: 1350
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # ~~Unknown~~ A ^{11/14/92} Frame # 24, 25
5. Analyses Requested:

*Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input type="checkbox"/>	*RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input checked="" type="checkbox"/>	**RAD Isotopic	<input checked="" type="checkbox"/>
*Metals	<input checked="" type="checkbox"/>	PCB	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
6. Preservatives: 4°C Other: * Nitric Acid (HNO₃)
** HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: Disposable Bailor	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): _____
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) _____
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

Sump is located outside NW corner of building 36; 10 ft deep and very little liquid.

Collected Volatiles sample into 11/13/91 at 0830^{hrs}. Had to pour samples.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

6

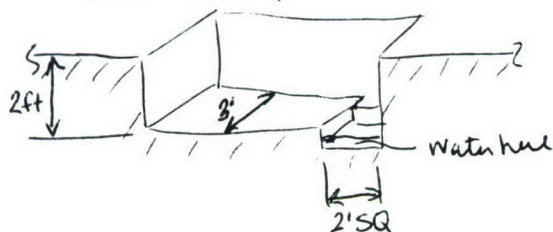
1. Site MTL- Building 39
2. Sample I.D.: 39SW01 Date: 11/7/91 Time: 1530
3. Samplers: M. Lemmon R. Fuller
4. Photograph: Roll # unknown C Frame # 2, 3, 2 11/14/92
5. Analyses Requested:

*Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input type="checkbox"/>	*RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input checked="" type="checkbox"/>	**RAD Isotopic	<input checked="" type="checkbox"/>
*Metals	<input checked="" type="checkbox"/>	PCB	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
6. Preservatives: 4°C Other: * HNO₃
** HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Disposable Bailer</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
 Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:

First Sump within tunnel.

Collected volatiles 11/13/91 at 1115 hrs.



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

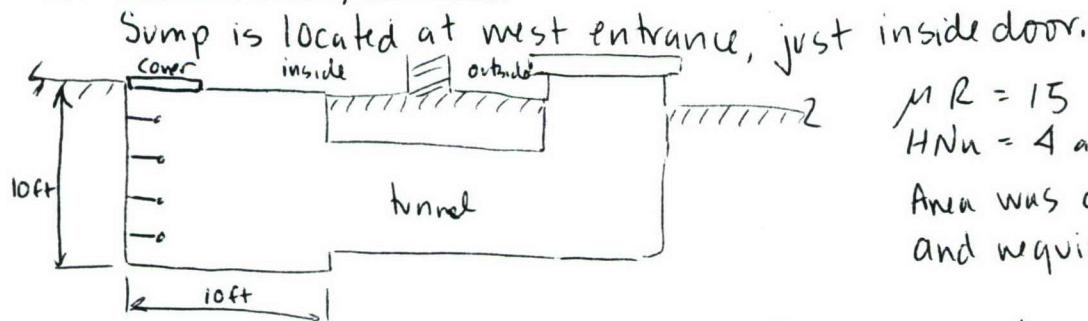
(21)

1. Site MTL - Building 43
2. Sample I.D.: 43 SED01 Date: 11/11/91 Time: 1415
43 SW02
3. Samplers: M. Lemmon, R. Fuller, L. Wertz
4. Photograph: Roll # Unknown C ^{from} 11/4/92 Frame # 28, 29 ^{from} 11/4/92
27, 28
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	*RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	**RAD Isotopic	<u>✓</u>
*Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other: SW Samples: * HNO₃
* HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock

15. Location Sketch/Comments:



$\mu R = 15$
 HNu = 4 above background (SED)
 Area was a confined space
 and required a permit.

1520.ad No liquid on 11/13/91 to
 collect VOA sample.

Also prepared a field blank
 43 SW02RB.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL- Building 43
2. Sample I.D.: 43SW01 Date: 11/7/91 Time: 1445
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # ~~Unknown~~ A 11/4/92 Frame # 26
5. Analyses Requested:

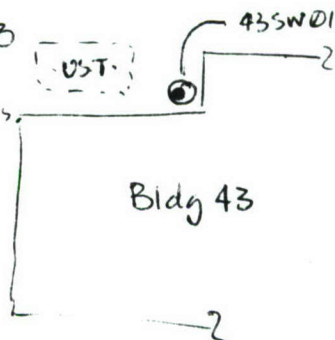
** Volatiles	<u>✓</u>	Cyanide	<u> </u>	*RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	*RAD Isotopic	<u>✓</u>
*Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other: * HNO₃
** HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Disposable Bailer</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:

Located in a drain at NW corner of Bldg 43

Collected Volatiles sample 11/13/91 at 0840hrs.



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site MTL- Building 43
2. Sample I.D.: 43SED02 Date: 11/11/91 Time: 1515
3. Samplers: M. Lemmon, R. Fuller, L. Wertz
4. Photograph: Roll # Unknown C Frame # 30, 31 29, 30 Jan 1/4/92
5. Analyses Requested:
- | | | | | | |
|---------------|---------------|------------|---------------|----------------------|---------------|
| Volatiles | <u> </u> | Cyanide | <u> </u> | RAD Gross Alpha/Beta | <u>✓</u> |
| Semivolatiles | <u>✓</u> | Pesticides | <u>✓</u> | RAD Isotopic | <u>✓</u> |
| Metals | <u>✓</u> | PCB | <u>✓</u> | Other | <u> </u> |
6. Preservatives: 4°C Other:
7. Sampling Method:
- | | | |
|----------------------|------------------|--------------------|
| <u>T-Shelby Tube</u> | CR-Coring Tube | P-Petit Ponar |
| <u>TR-Trowel</u> | A-Auger Cuttings | WK-Wildco KB Corer |
| SS-Split Spoon | Other: | |
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:
In ground tank is beside the ACME Bolt + Nut machine,
located between columns 15 + 16 on the south wall.
MR = 10 (includes bknd). Tank was under diamond plate
cover.
Also prepared a field blank 43SED02 RB.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 43SW03 Date: 11-Dec-91 Time: 11:55
3. Samplers: D. Mellon
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u> (ceranium)
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	_____
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR</u> -Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other - sump beneath press in Bldg. 43
10. Sampling Interval (ft) 0-6" 2,000
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:
oil sample. They could only analyze for PCBs for approved methods. They used method 99 for some analytes

- 15.
- Location Sketch/Comments:

↑ 292 SW 21

G-9

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

25

1. Site MTL- Building ^{100 Rm} 292 ¹¹⁴
2. Sample I.D.: ¹⁰⁰ 292SW02 Date: 11/12/91 Time: 1045
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # Unknown C ^{100 Rm} 1/4/92 Frame # 37 ³⁸ 36 ³⁷

5. Analyses Requested:

**Volatiles	<u>✓</u>	Cyanide	<u>✓</u>	*RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	**RAD Isotopic	<u>✓</u>
*Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>

6. Preservatives: 4°C Other: *HNO₃
**HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: Disposable Bailer	

8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):

9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other

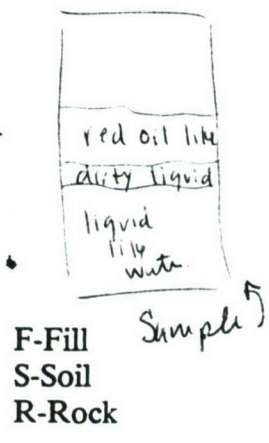
10. Sampling Interval (ft)

11. General Texture: Soil Sand Gravel Other

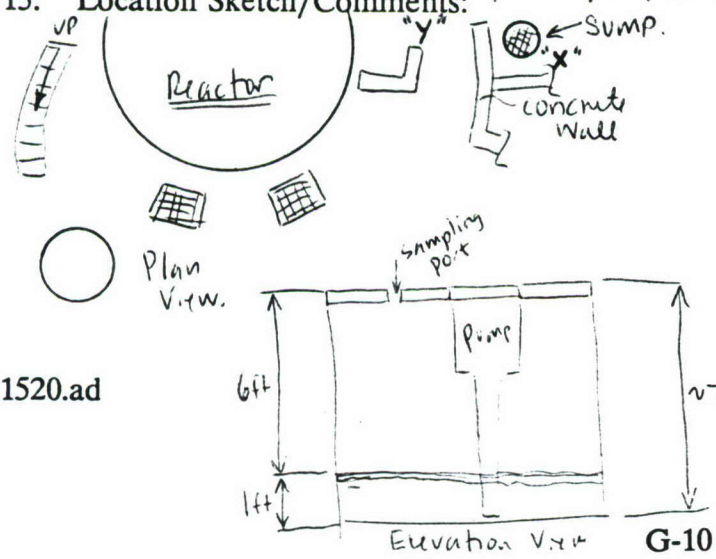
12. Moisture: Wet/Moist/Dry

13. Maximum Rock Size (in.)

14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments



15. Location Sketch/Comments: Collected Volatiles sample 11/13/91 at 0940 hrs.



Sump is located in basement of reactor behind a concrete wall. Sampling port was 3 - 4 inch ϕ . $\mu R = 20$ at "X" (concrete wall as shield) and $\mu R = 30-38+$ at "Y" area.

SW sample had red oil like layer, then dirty layer less dense than oil but more dense than bottom "water" layer.

Prepared FBKs 292SW02RB

1520.ad

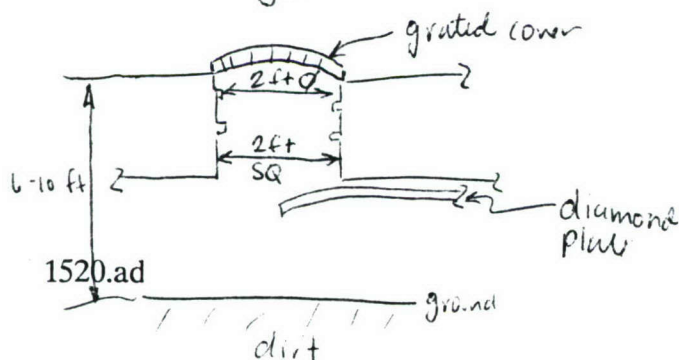
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL- Building 242
2. Sample I.D.: 242 SED081 ^{Pdm 1/4/92} Date: 11/10/91 Time: 1006
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # Unknown ^{C Pdm 1/4/92} Frame # 17, 18 ^{Pdm 1/4/92}
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P-Petit Ponar</u>
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): _____
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) _____
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

①

1. Site MTL - Building 242
2. Sample I.D.: 242SW01 Date: 6 NOV 1991 Time: 1225
3. Samplers: B. Houser, R. Fuller, M. Lemmon
4. Photograph: Roll # Unknown A Frame # 16, 17, 18
5. Analyses Requested:

**Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input type="checkbox"/>	*RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input checked="" type="checkbox"/>	**RAD Isotopic	<input checked="" type="checkbox"/>
*Metals	<input checked="" type="checkbox"/>	PCB	<input checked="" type="checkbox"/>	Other	
6. Preservatives: 4°C Other: *Nitric Acid (HNO₃)
**HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Decontaminated bailer.</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): _____
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) _____
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:

Fenced-in underground cistern accessible from outside.
Estimated dimensions are 30ft x 30ft x 18ft deep.
Liquid was clear.

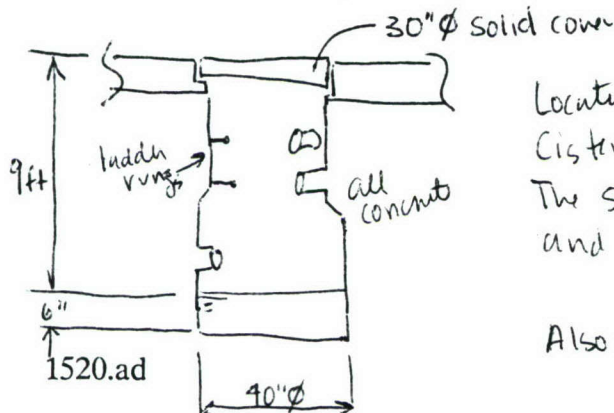
Collect Volatiles sample 11/13/91 at 1130 hrs and
also prepared a FBLK.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL- Building 243
2. Sample I.D.: 243SED01 Date: 11/10/91 Time: 1300
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # ~~Unknown~~ C ^{P2M} 1/4/92 Frame # ~~20~~ ²¹ P2M 1/4/92
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

<u>T-Shelby Tube</u>	CR-Coring Tube	<u>P-Petit Ponar</u>
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:



Located at 243SW01.
Cistern is located just outside Bldg 243.
The silty, watery sludge had a petro sheen
and smelled of petro.

Also collected a field blank 243SED01RB

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

(2)

1. Site MTL - Building 243
2. Sample I.D.: 243SW01 Date: 11/6/91 Time: 1501
3. Samplers: ^{Hoskins 11/4/92} B. Houser, R. Fuller, M. Lemmon
4. Photograph: Roll # ~~Unknown~~ A ^{11/4/92} Frame # ~~20~~ 21 ^{11/4/92}
5. Analyses Requested:

**Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input type="checkbox"/>	*RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input checked="" type="checkbox"/>	**RAD Isotopic	<input checked="" type="checkbox"/>
*Metals	<input checked="" type="checkbox"/>	PCB	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
6. Preservatives: 4°C Other: * Nitric Acid (HNO₃)
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: Disposable Bailer	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:

Cistern located outside Bldg 243. Bottom was
filled with black silty sludge and smelled
like Petroleum/oil. Est. 10-ft deep.

HNV reading was 7 ppm (incl background)

Collected Volatiles samples 11/13/91 at 0815 hrs.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL- Building 311
2. Sample I.D.: 311 SED 01 Date: 11/9/91 Time: 1320
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # ~~Unknown~~ C ^{10 11} 1/4/92 Frame # ~~9, 10~~ 10 11 1/4/92
5. Analyses Requested:
- | | | | | | |
|---------------|-------|------------|-------|----------------------|-------|
| Volatiles | _____ | Cyanide | _____ | RAD Gross Alpha/Beta | ✓ |
| Semivolatiles | ✓ | Pesticides | ✓ | RAD Isotopic | ✓ |
| Metals | ✓ | PCB | ✓ | Other | _____ |
6. Preservatives: 4°C Other: No preservation req'd in SEDs.
7. Sampling Method:
- | | | |
|------------------|---|---|
| T-Shelby Tube | CR-Coring Tube | P-Petit Ponar ^{by STET} |
| <u>TR-Trowel</u> | A-Auger Cuttings | WK-Wildco KB Corer |
| SS-Split Spoon | Other: No equipment (ie Ponar required) | |
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): _____
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) _____
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:
Dry Well located outside, near NE corner of Building 311. (Est.
3 ft deep)

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

13

1. Site MTL- Building 311
2. Sample I.D.: 311SED02 Date: 11/9/91 Time: 1345
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # ~~Unknown~~ C ^{12m} Frame # ^{12 13} N, 12 ^{12m 1/4.92}
1/4/92
5. Analyses Requested:

Volatiles	<u>X</u> No.	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:
Located midway between the outside north wall of
Bldg. 311. (Est. 3ft deep).

Also collected a field blank (311SED02RB)

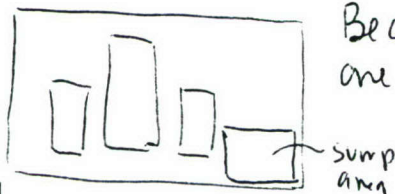
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site MTL - Building 311
2. Sample I.D.: 311SED03 Date: 11/11/91 Time: 0845
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # Unknown C ^{Perm} 1/4/92 Frame # 24, 25 ^{24 25} 1/4/92
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

No sign of liquid (sw) and sediment is very scarce. Sump is 5' L x 4' W x 2½' D. Within the sump is 1 sump pump P, piping, valves, small tank and 2 smaller pumps.



Because sediment was scarce Arsenic + Mercury are combined in 1 - 8oz amber jar.

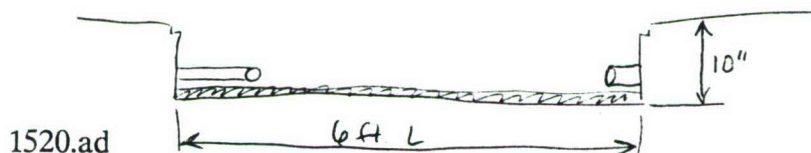
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL- Building 311
2. Sample I.D.: 311SED04 Date: 11/11/91 Time: 0945
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # Unknown C ^{1/4/92} Frame # 26, 27
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

<u>T-Shelby Tube</u>	CR-Coring Tube	<u>P-Petit Ponar</u> ^{STET}
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock

15. Location Sketch/Comments:
Tank is 6ft L x 16in W x 10in D, and located on south wall at column 28. Diamond plate cover was removed to reveal 1½" thick petroleum sludge.



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site MTL - Building 311 and RB
2. Sample I.D.: 311SW01A Date: 11/6/91 Time: 1538
3. Samplers: B. Houser, R. Fuller, M. Lemmon
4. Photograph: Roll # Unknown A Frame # 21, 22, 23
1/4/92
5. Analyses Requested:

**Volatiles	<u>✓</u>	Cyanide	<u>✓</u>	*RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	**RAD Isotopic	<u>✓</u>
*Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other: *HNO₃
**HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Disposable Bailer</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:

Sump is located outside buildings west wall,
estimated 10 ft deep.

Also collected Rinse Blank, 311SW01RB, at 1643 hrs.
Collected volatiles sample 11/13/91 at 0700 hrs

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL - Building 311
2. Sample I.D.: 311SW02 Date: 11/7/91 Time: 1606
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # ~~Unknown~~ C ^{REM} 11/4/92 Frame # ~~3~~ ⁴ ~~4~~ ⁵ REM 11/4/92
5. Analyses Requested:

**Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input type="checkbox"/>	*RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input checked="" type="checkbox"/>	**RAD Isotopic	<input checked="" type="checkbox"/>
*Metals	<input checked="" type="checkbox"/>	PCB	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
6. Preservatives: 4°C Other: *HNO₃
**HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: Disposable Bailer	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

Sample is located within a sump on south wall
between columns 37 and 38, est. 25 ft deep.
Also collected a ring blank; 311SW02RB
Collected Volatiles sample 11/13/91 at 0730 hrs.

⑨

- G-21

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site MTL - Building 311
2. Sample I.D.: 311SW04 Date: 11/8/91 Time: 0740
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # Unknown C ^{P2M} _{1/4/92} Frame # 6 7 _{8, 6 P2M 1/4/92}
5. Analyses Requested:

** Volatiles <u>✓</u>	Cyanide <u> </u>	*RAD Gross Alpha/Beta <u>✓</u>
Semivolatiles <u>✓</u>	Pesticides <u>✓</u>	**RAD Isotopic <u>✓</u>
*Metals <u>✓</u>	PCB <u>✓</u>	Other <u> </u>
6. Preservatives: 4°C Other: * HNO₃
 ** HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Disposable Bailer</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments	F-Fill S-Soil R-Rock
--	----------------------------
15. Location Sketch/Comments:

Sump is located at the south wall between
columns 20 and 21, estimated 5 ft. deep.

Collected Volatiles sample 11/13/91 at 0740 hrs.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site MTL - Building 311
2. Sample I.D.: 311SW05 Date: 11/11/91 Time: 0800
3. Samplers: M. Lemmon R. Fuller
4. Photograph: Roll # Unknown C 1/4/92 Frame # 22, 23, 24 1/4/92
5. Analyses Requested:

** Volatiles <u>✓</u>	Cyanide <u>✓</u>	* RAD Gross Alpha/Beta <u>✓</u>
Semivolatiles <u>✓</u>	Pesticides <u>✓</u>	** RAD Isotopic <u>✓</u>
* Metals <u>✓</u>	PCB <u>✓</u>	Other <u> </u>
6. Preservatives: 4°C Other: * HNO₃
** HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: Disposable Bailer	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:



sediment on bottom.
Collected Volatiles sample 11/13/91
at 0730 hrs.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

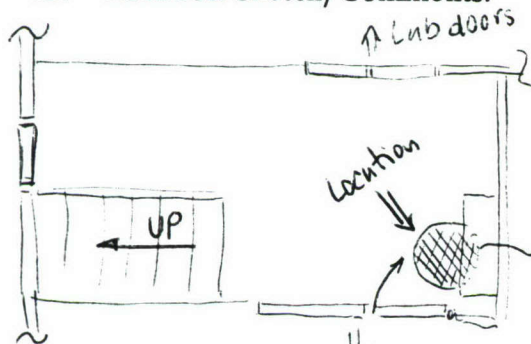
23

1. Site MTL- Building 312
2. Sample I.D.: 312SED01 Date: 11/12/91 Time: 0900
3. Samplers: M. Lemmon, R. Fuller, L. Wertz
4. Photograph: Roll # Unknown C 174/92 Frame # 33, 34, 35 1/4/92
5. Analyses Requested:

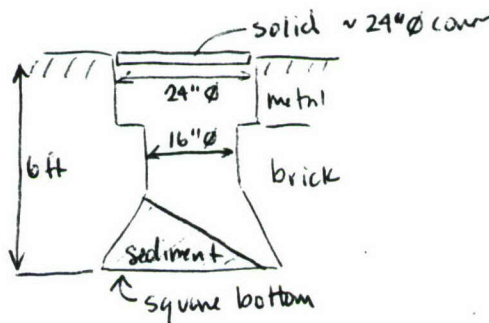
Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P-Petit Ponar</u>
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill S-Soil R-Rock

15. Location Sketch/Comments:



Plan View



Sample location inside bldg entrance on west side of bldg.

Also prepared FBCK, 312SED01RB

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site MTL - Building 313C
2. Sample I.D.: 313CSED01 Date: 11/9/91 Time: 0900
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # Unknown Frame # P. Mitzen has film
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other: No preservation required in SED's.
7. Sampling Method:

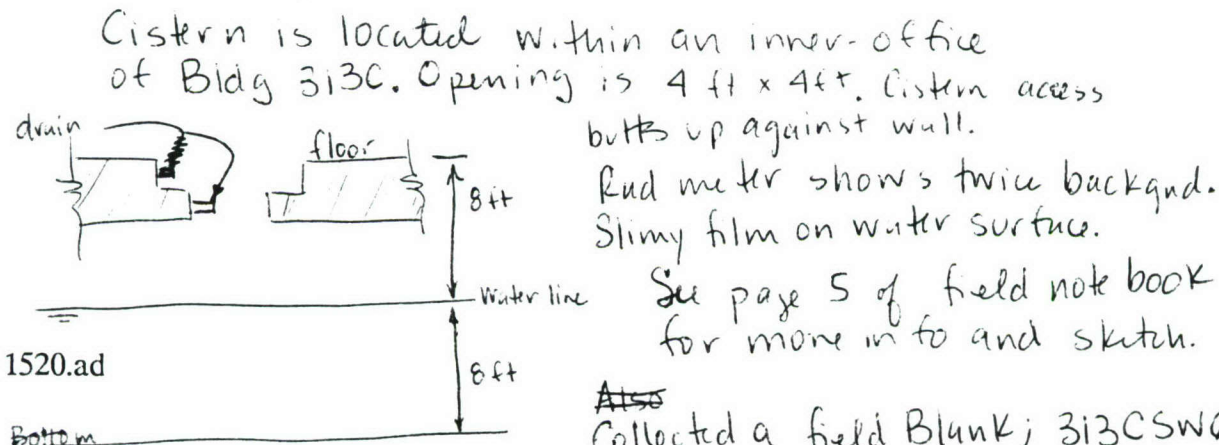
T-Shelby Tube	CR-Coring Tube	<u>P-Petit Ponar</u>
<u>TR-Trowel</u>	A-Auger Cuttings	<u>WK-Wildco KB Corer</u>
SS-Split Spoon	Other: <u>Disposable Bailor</u>	<u>Decontaminated Ponar</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft):
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft)
11. General Texture: Soil Sand Gravel Other
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:
Location identical to 313CSW01. Also collected a duplicate sample (313CSED01D).

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL- Building 313C
2. Sample I.D.: 313CSW01 Date: 11/8/91 Time: 1709
3. Samplers: M. Lemmon, R. Fuller
4. Photograph: Roll # Unknown Frame # (P. Mintzen has film)
5. Analyses Requested:

* Volatiles - <u>To be collected</u>	Cyanide	_____	*RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles <u>✓</u>	Pesticides	<u>✓</u>	**RAD Isotopic	<u>✓</u>
*Metals <u>✓</u>	PCB	<u>✓</u>	Other	_____
6. Preservatives: 4°C Other: * HNO₃
** HCl
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Disposable Bailer</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): _____
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) _____
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 313NSD01 Date: 26 November 91 Time: 1015
3. Samplers: Larry Werts, Pam Mitzen
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles	_____	Cyanide	<u>X</u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>X</u>	Pesticides	<u>X</u>	RAD Isotopic	<u>X</u> (Uranium)
Metals	<u>X</u>	PCB	<u>X</u>	Other	<u>Explosives, Nitrates</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

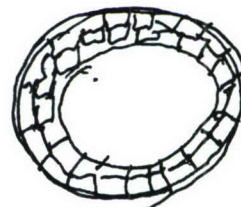
<u>T-Shelby Tube</u>	CR-Coring Tube	P-Petit Ponar
<u>IR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other - Dry well in 313 north
10. Sampling Interval (ft) 0-6"
11. General Texture: Soil _____ Sand ✓ Gravel ✓ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

25' deep brick-lined dry-well
O₂ deficient atmosphere.
very dry soil.

1520.ad



G-27



Plan View

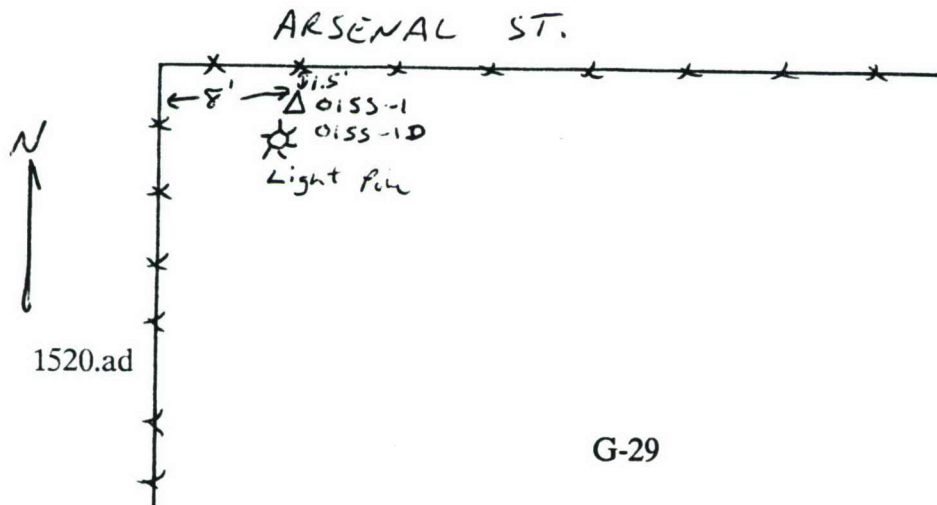
APPENDIX G.2
SURFACE SOIL SAMPLES FIELD SAMPLING LOGS

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 01SS-1 Date: 21 Oct 91 Time: 1025
3. Samplers: Mike Wagner / Suz Faulkner
4. Photograph: Roll # _____ Frame # 041
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u>PH</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1-2"
9. Topographic Position: Flat Upland Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) 0.2-0.6
11. General Texture: Soil _____ Sand _____ Gravel _____ Other Fine Sand
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1"
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill
S-Soil R-Rock
15. Location Sketch/Comments:



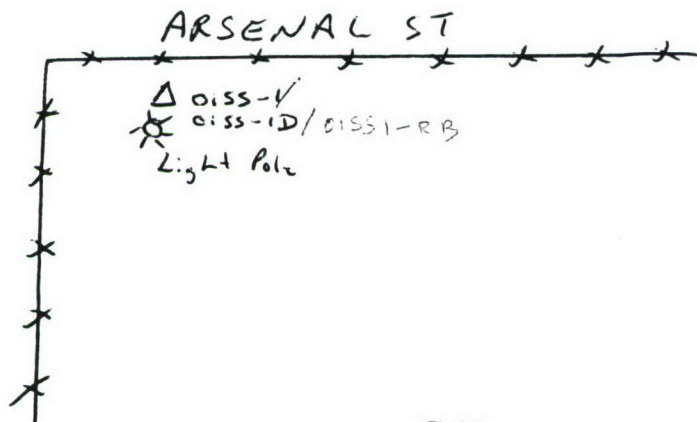
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 01SS-1D Date: 21 Oct 91 Time: 1025
3. Samplers: Mike Wagner / Sue Faulkner
4. Photograph: Roll # _____ Frame # 0 + 1
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input checked="" type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input checked="" type="checkbox"/>	Other	<u>PH</u> <input checked="" type="checkbox"/>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR</u> -Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): .2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) .2-.6
11. General Texture: Soil _____ Sand _____ Gravel _____ Other Fine Sand
12. Moisture: Wet/Moist Dry
13. Maximum Rock Size (in.) 1
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments

E-Fill
 S-Soil
 R-Rock
15. Location Sketch/Comments:



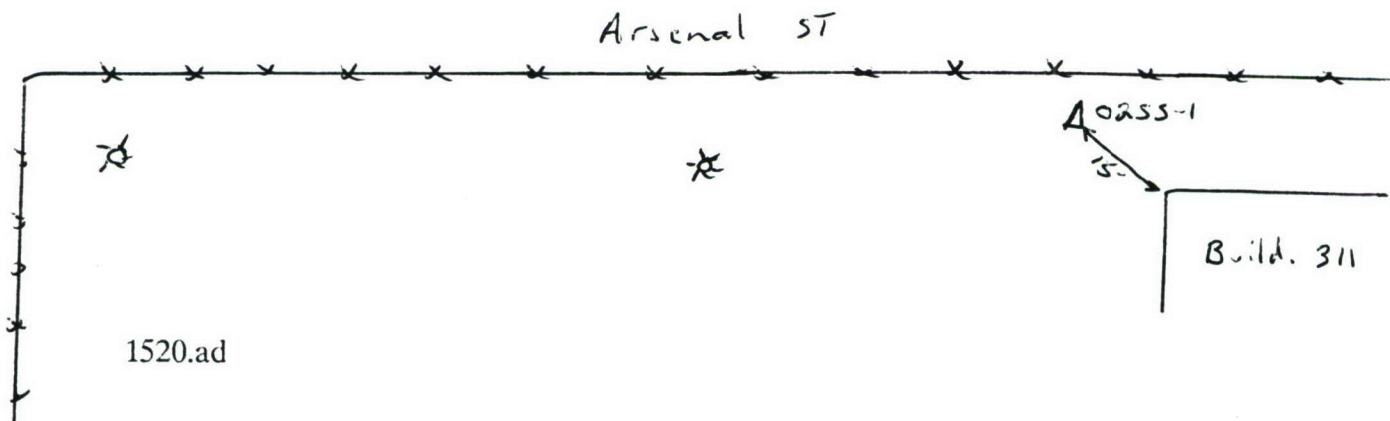
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SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 02SS-1 Date: 21 Oct 91 Time: 1115
3. Samplers: Mike Wagner / Sue Faulkner
4. Photograph: Roll # _____ Frame # 2
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input checked="" type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input checked="" type="checkbox"/>	Other	<u>PH</u> <input checked="" type="checkbox"/>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR</u> -Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): .2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) .2-.5
11. General Texture: Soil _____ Sand ☒ Gravel ☒ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 2.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

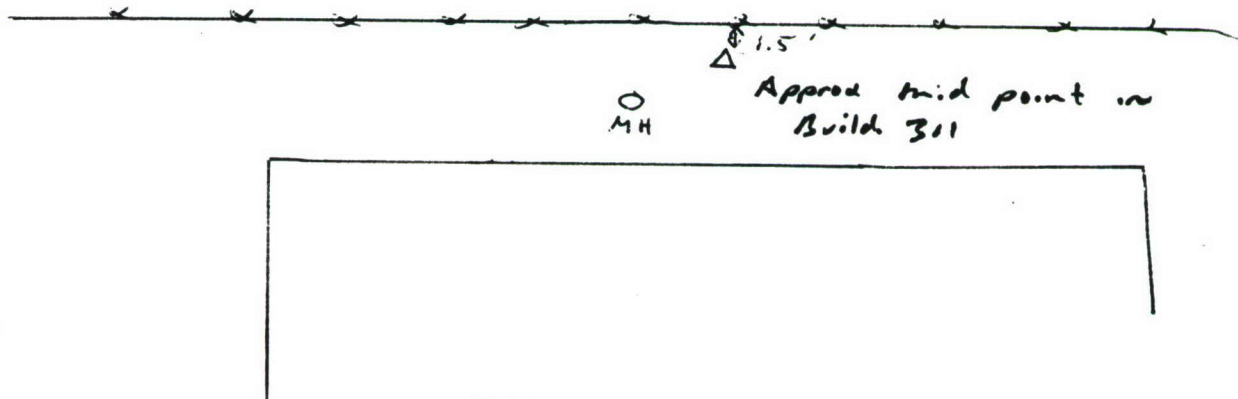


SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 0255-2 Date: 21 Oct 91 Time: 1135
3. Samplers: Mike Wagner / Sue Faulkner
4. Photograph: Roll # _____ Frame # 3
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	_____	Pesticides	_____	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	_____	Other	<u>PH</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): .2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) .2-.5
11. General Texture: Soil _____ Sand fine Gravel small Other brick fragments
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:



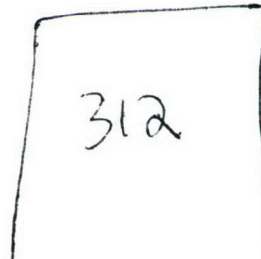
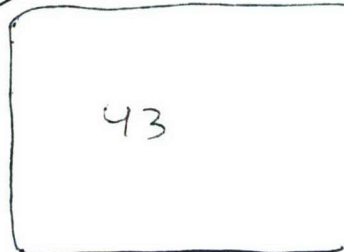
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SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 0255-3 Date: 23 Oct 91 Time: 0945
3. Samplers: Joe Faulkner / Mike Wagner
4. Photograph: Roll # _____ Frame # 25
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	✓
Semivolatiles	_____	Pesticides	✓	RAD Isotopic	✓
Metals	✓	PCB	✓	Other	<u>pH</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR</u> -Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) 1-1.5
11. General Texture: Soil ✓ Sand ✓ Gravel ✓ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments Soil R-Rock
15. Location Sketch/Comments:



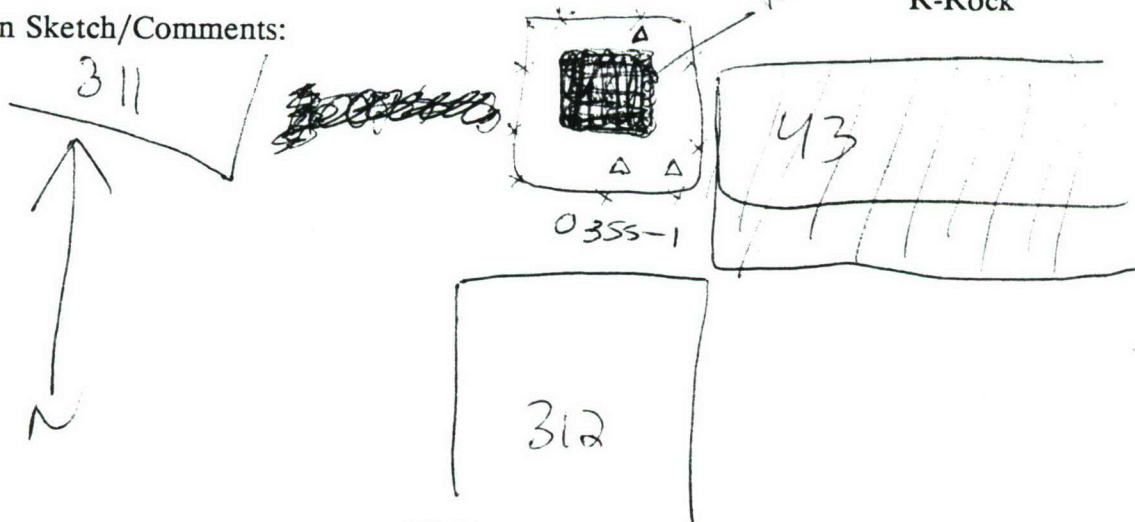
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SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL 0355-1
2. Sample I.D.: 0355-3 Date: 23 Oct 91 Time: 0930
3. Samplers: Sue Hamilton / Mike Wagner
4. Photograph: Roll # _____ Frame # 1
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	_____	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u>pH</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1.2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) 1.2-1.7
11. General Texture: Soil ✓ Sand ✓ Gravel ✓ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 2.5 in
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill S-Soil R-Rock
15. Location Sketch/Comments:



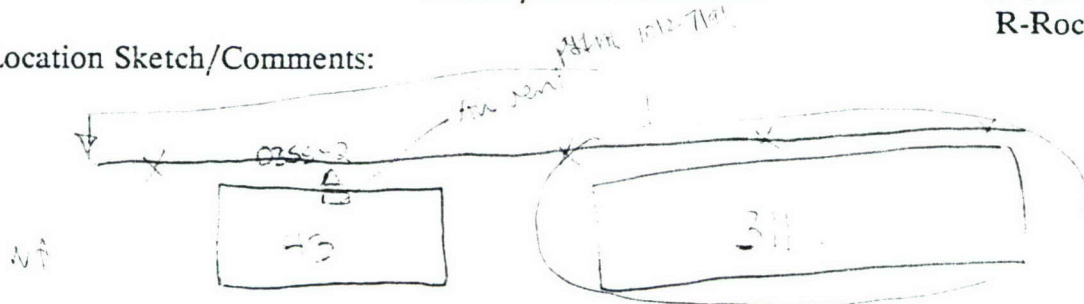
1520.ad

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 0255-2 Date: 22 Oct 91 Time: 09:20
3. Samplers: S. A. Faulkner
4. Photograph: Roll # _____ Frame # 16
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <u>✓</u>
Semivolatiles _____	Pesticides _____	RAD Isotopic <u>✓</u>
Metals <u>✓</u>	PCB _____	Other <u>PH</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube _____	CR-Coring Tube _____	P-Petit Ponar _____
TR-Trowel _____	A-Auger Cuttings _____	WK-Wildco KB Corer _____
SS-Split Spoon _____	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0-5
11. General Texture: Soil ✓ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 3
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, (F) Fill
Stream/Ditch Sediments (S) Soil
R-Rock
15. Location Sketch/Comments:



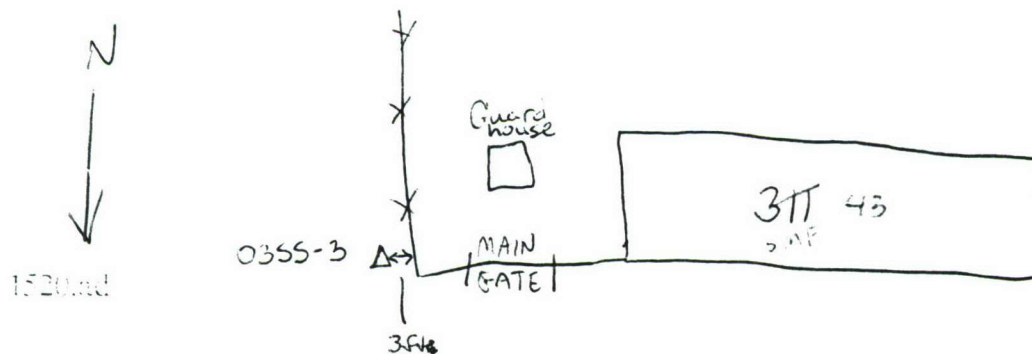
SOIL/SEDIMENT SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 0355-3 Date: 22 Oct 91 Time: 0855
3. Samplers: Sue Faulkner / Mike Wagner
4. Photograph: Roll # _____ Frame # 15
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <u>SMF</u>
Semivolatiles <u>✓</u>	Pesticides _____	RAD Isotopic <u>✓</u>
Metals <u>✓</u>	PCB <u>✓</u>	Other <u>pH</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Sheiby Tube	CR-Coring Tube	P-Petit Ponar
<u>TS</u> Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
 Depth Removed (ft): 2-2.5
SMF
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch
 Stream/Other _____
10. Sampling Interval (ft) 2-1-5
SMF
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments.	F-Fill
Stream/Ditch Sediments	<u>S</u> Soil
	R-Rock
15. Location Sketch/Comments: Approx three feet from fence,
0-1.5 feet from side walk



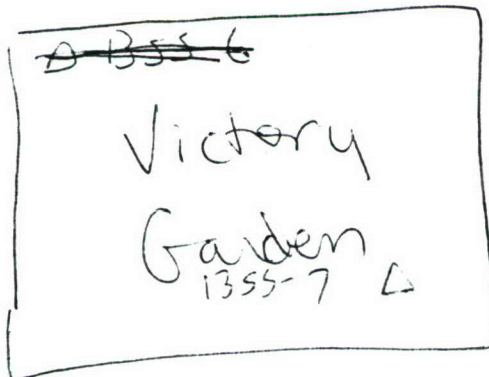
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1355-7 Date: 22 Oct 91 Time: 11:15
SmF
3. Samplers: Sue Faulkner
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u> </u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u> </u>	Other	<u>ph</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 1-5
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 2 1/2
SmF
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

1 tennis courts



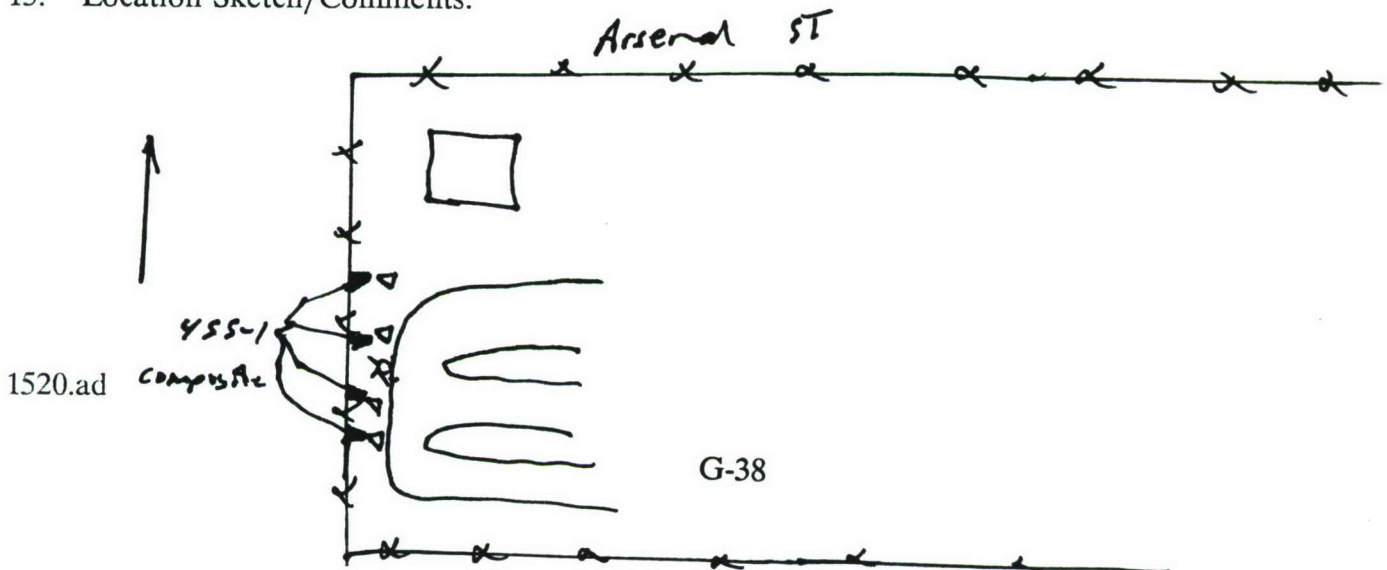
1520.ad

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site MTL
2. Sample I.D.: 04SS-1 Date: 21 Oct 91 Time: 1315
3. Samplers: Mike Wagner / Svc Faulkner
4. Photograph: Roll # _____ Frame # 4
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <input checked="" type="checkbox"/>
Semivolatiles _____	Pesticides <input checked="" type="checkbox"/>	RAD Isotopic <input checked="" type="checkbox"/>
Metals <input checked="" type="checkbox"/>	PCB _____	Other _____
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube _____	CR-Coring Tube _____	P-Petit Ponar _____
<input checked="" type="checkbox"/> Trowel _____	A-Auger Cuttings _____	WK-Wildco KB Corer _____
SS-Split Spoon _____	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-.2
9. Topographic Position: Flat ☒ Upland/Sloped _____ Upland/Swale/Drainage _____ Ditch/Stream/Other _____
10. Sampling Interval (ft) .2-.6
11. General Texture: Soil loam Sand fine-med Gravel smc Other _____
12. Moisture: Wet/Moist/☒ Dry
13. Maximum Rock Size (in.) 1
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, ☒ Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

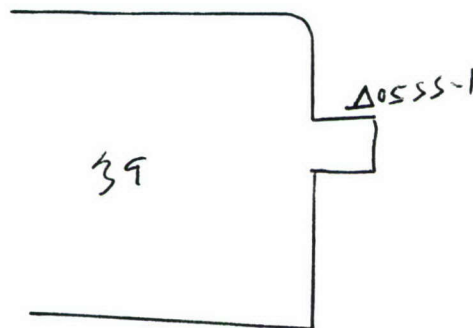


SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site
2. Sample I.D.: 0555-1 Date: 21 Oct 91 Time: 1410
3. Samplers: Mike Wagner / Sue Faulkner
4. Photograph: Roll # _____ Frame # 6
5. Analyses Requested:

Volatiles	<u>✓</u>	Cyanide	_____	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	_____	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	_____	Other	<u>PH</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR</u> -Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): .2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) .2 - .6
11. General Texture: Soil _____ Sand M→C Gravel some Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:



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Parker

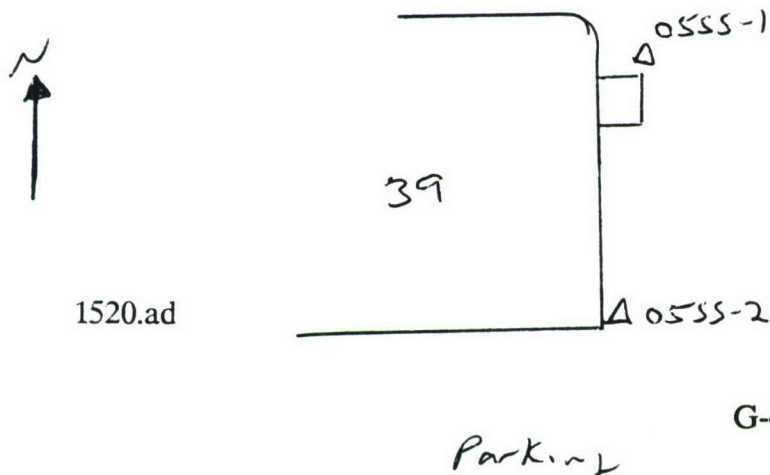
G-39

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 05SS-2 Date: 21 Oct 91 Time: 1430
3. Samplers: Mike Wagner / Suz Faulkner
4. Photograph: Roll # _____ Frame # 7
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	_____	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	_____	Other	<u>pH</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR</u> -Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-.2
9. Topographic Position: (Flat) Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) .2-.7
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) .5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 0655-1 Date: 21 Oct 91 Time: 1510
3. Samplers: Sue Fauthner / Mike Wagner
4. Photograph: Roll # _____ Frame # 9
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <u>✓</u>
Semivolatiles _____	Pesticides _____	RAD Isotopic <u>✓</u>
Metals <u>✓</u>	PCB <u>✓</u>	Other <u>pH, Cs-137, Th-230</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube _____	CR-Coring Tube _____	P-Petit Ponar _____
<u>TR</u> -Trowel _____	A-Auger Cuttings _____	WK-Wildco KB Corer _____
SS-Split Spoon _____	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-1.2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 1.2-1.5
11. General Texture: Soil 10cm Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: Sample taken 0.12 m. off concrete pad

N



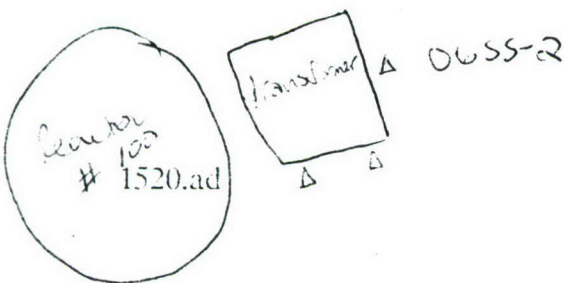
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SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 06SS-2 Date: 21 Oct 91 Time: 14 SMF 1500
SMF
3. Samplers: Sue Faulthner, Mike Wagner
4. Photograph: Roll # _____ Frame # 8 10
SMF
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <u>SMF</u>
Semivolatiles _____	Pesticides _____	RAD Isotopic <u>✓</u>
Metals <u>✓</u>	PCB <u>✓</u>	Other <u>pH, Cs-137, Th-23</u>
6. Preservatives: 4°C Other: OK M43/92
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-1.2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 2-6
SMF
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments (S) Soil
R-Rock
15. Location Sketch/Comments: Sample taken 0-12 in. of concrete pad
311



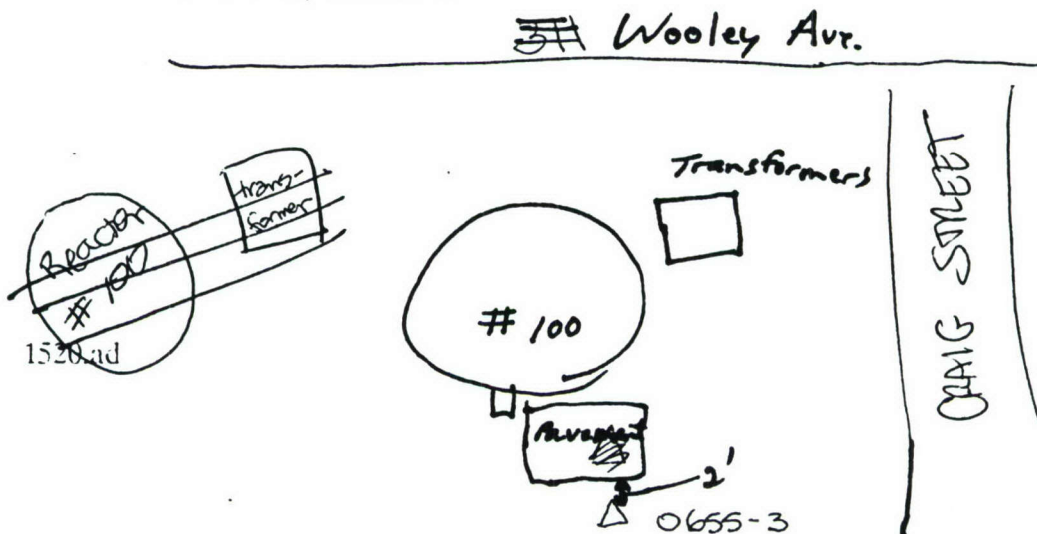
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 0655-3 Date: ²¹2000 _{SMP} 91 Time: 1535
3. Samplers: Sue Faulkner / Mike Wagner
4. Photograph: Roll # _____ Frame # 11
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <u>SMP [✓] <u>SMF</u></u>
Semivolatiles _____	Pesticides _____	RAD Isotopic <u>[✓] <u>SMF</u></u>
Metals <u>[✓]</u>	PCB _____	Other <u>pH, Cs-137, Th-230</u>
6. Preservatives: 4°C _____ Other: pH 4/5/92
7. Sampling Method:

T-Shelby Tube _____	CR-Coring Tube _____	P-Petit Ponar _____
<u>TR</u> Trowel _____	A-Auger Cuttings _____	WK-Wildco KB Corer _____
SS-Split Spoon _____	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-12
9. Topographic Position: (Flat) Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0-1.5
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 3.2
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	<u>S</u> Soil
	R-Rock
15. Location Sketch/Comments:



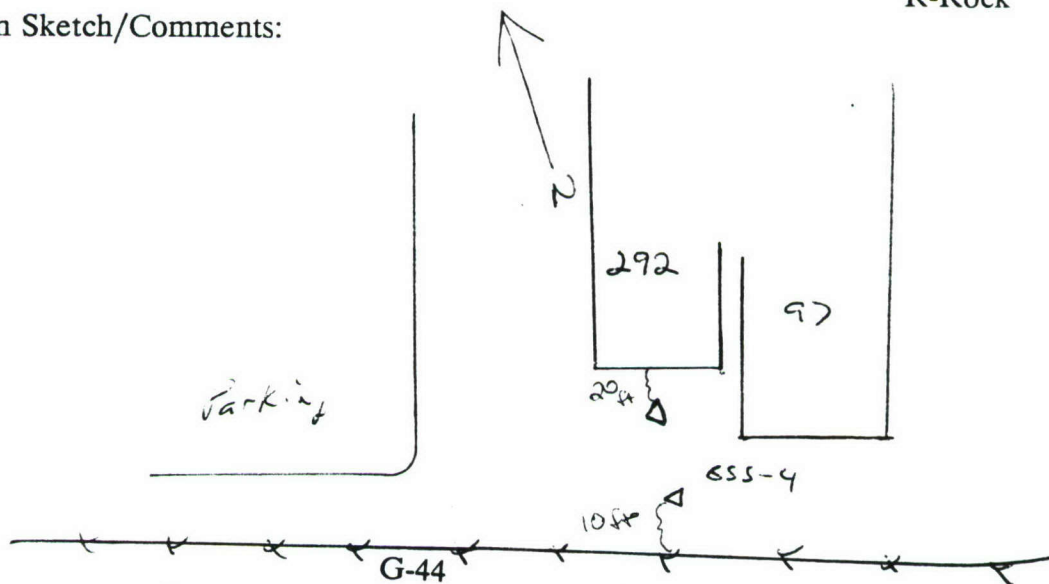
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site MTL
2. Sample I.D.: 06SS-4 Date: 21 Oct 91 Time: 1350
3. Samplers: Mike Wagner / Sue Faulkner
4. Photograph: Roll # _____ Frame # 5
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<input checked="" type="checkbox"/>	RAD Isotopic	_____
Metals	<input checked="" type="checkbox"/>	PCB	_____	Other	_____
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR</u> -Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) .2 - .4
11. General Texture: Soil clay Sand fine - med Gravel small Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) .75
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, (F) Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

1520.ad

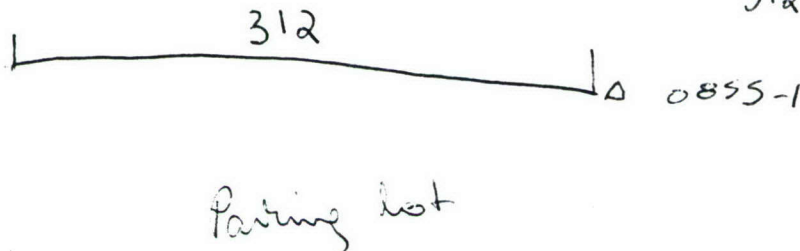


SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site 0855-1 MTL
SMF
2. Sample I.D.: 0855-1 Date: 21 Oct 91 Time: 1600
3. Samplers: Sue Faulkner / Mike Wagner
4. Photograph: Roll # _____ Frame # 12
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <u>✓</u>
Semivolatiles _____	Pesticides _____	RAD Isotopic <u>✓</u>
Metals <u>✓</u>	PCB _____	Other <u>PH</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

<u>T</u> -Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR</u> -Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0.2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0.2-0.5
SMF
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) .5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: 1ft. off Southeast corner of Building
312



1520.ad

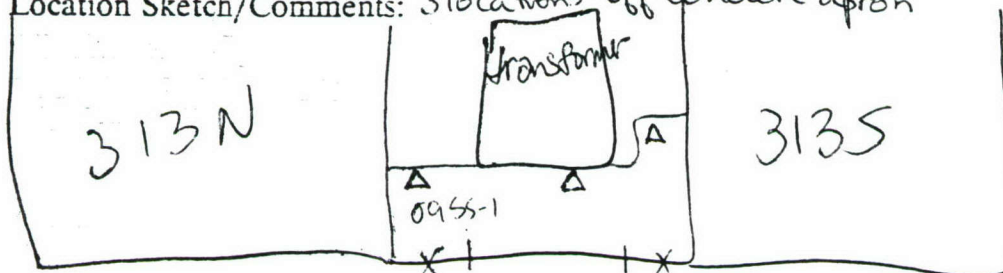
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site
2. Sample ID.: 0955-1 Date: 23 Oct 91 Time: 1010
3. Samplers: Site Fork Knives
4. Photograph: Roll # _____ Frame # 2
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <u>✓</u>
Semivolatiles _____	Pesticides <u>✓</u>	RAD Isotopic <u>✓</u>
Metals <u>✓</u>	PCB <u>✓</u>	Other <u>pH</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR</u> -Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0.1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 1-7
11. General Texture: Soil _____ Sand ✓ Gravel ✓ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 3
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil R-Rock

15. Location Sketch/Comments: 3 locations off concrete apron



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N ←

312 G-46

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

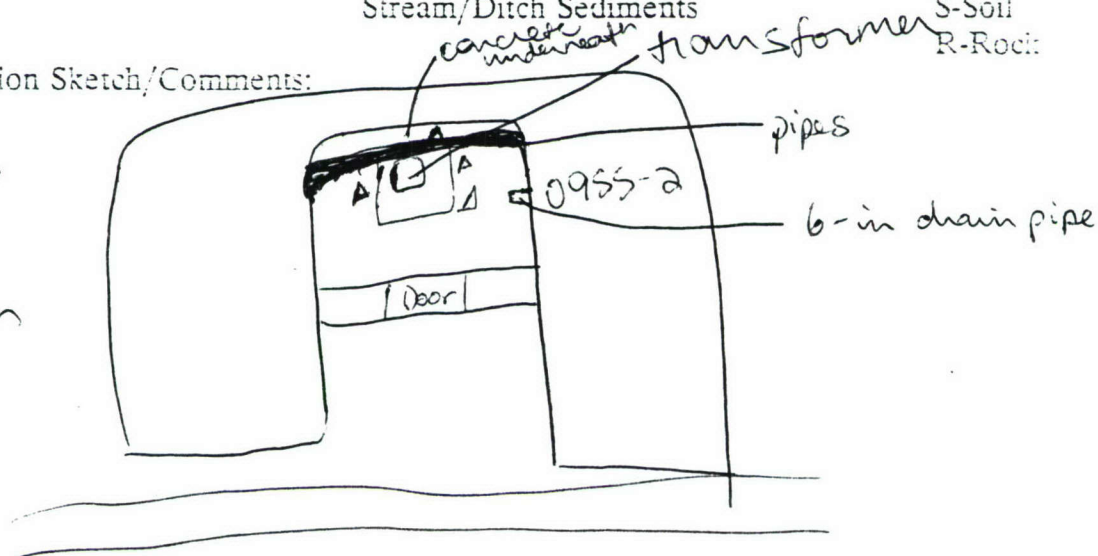
1. Site MTL
2. Sample I.D.: 0955-2 Date: 23 Oct 91 Time: 1045
3. Samplers: Sue Faulkner / Mike Wagner
4. Photograph: Roll # _____ Frame # 3
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <u>✓</u>
Semivolatiles _____	Pesticides _____	RAD Isotopic <u>✓</u>
Metals <u>✓</u>	PCE <u>✓</u>	Other <u>pH</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch
Stream/Other
10. Sampling Interval (ft) .1 - .6
11. General Texture: Soil _____ Sand _____ Gravel ✓ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 2
14. Geologic Material Category: U-Unconsolidated Rock/Sediments. F-Fill
Stream/Ditch Sediments S-Soil R-Rock

15. Location Sketch/Comments:

4 locations
just ab
concrete
apron



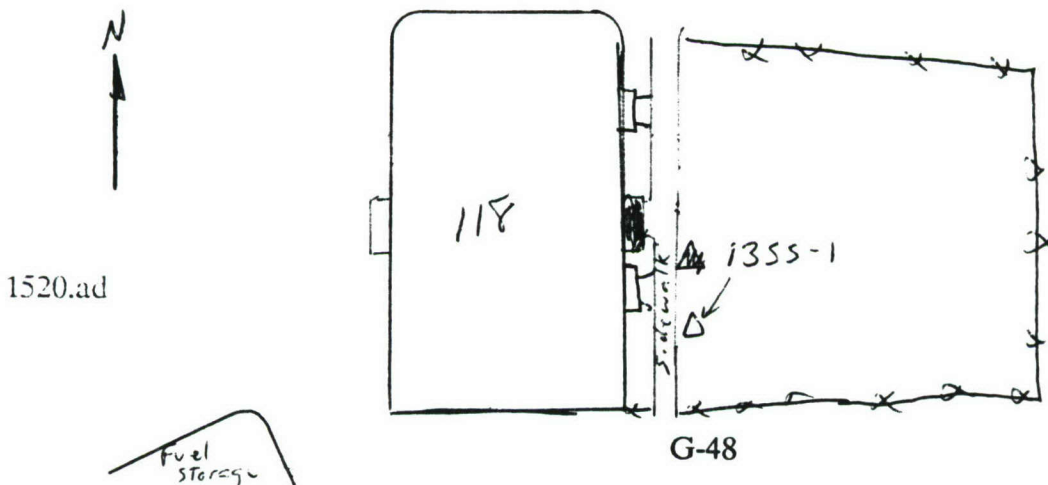
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SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 61355-1 Date: 21 Oct 91 Time: 1625
3. Samplers: Sue Fankner / Mike Wagner
4. Photograph: Roll # _____ Frame # 1
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>ph</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<input checked="" type="checkbox"/> Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-.2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 2-5
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) .5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S Soil
R-Rock
15. Location Sketch/Comments:

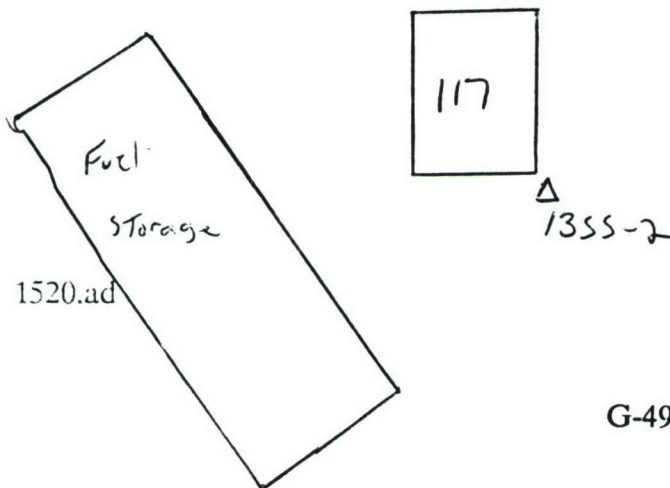


SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: SNE 1355-2 Date: 21 Oct 91 Time: 1625
3. Samplers: Sue Faulkner / Mike Wagner
4. Photograph: Roll # _____ Frame # 13
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>_____</u>
Semivolatiles	<u>✓</u>	Pesticides	_____	RAD Isotopic	<u>_____</u>
Metals	<u>✓</u>	PCB	_____	Other	<u>04</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 12-15
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) .5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1385-3 Date: 2012 23 Oct 9 Time: 1110
SNF
3. Samplers: Sue Faulkner / Mike Wagner
4. Photograph: Roll # _____ Frame # 4
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta _____
Semivolatiles _____	Pesticides _____	RAD Isotopic _____
Metals <u>✓</u>	PCE <u>✓</u>	Other <u>pH</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

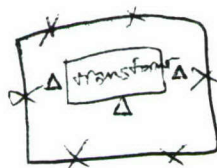
<u>✓</u> Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>✓</u> Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0 - .1
9. Topographic Position: (Flat) Upland/Sloped Upland/Swale/Drainage Ditch
Stream/Other
10. Sampling Interval (ft) .1 - .5
11. General Texture: Soil ✓ Sand _____ Gravel ✓ Other _____
12. Moisture: Wet/Moist/(Dry)
13. Maximum Rock Size (in.) 2
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments

✓ Fill
✓ Soil
 R-Rock

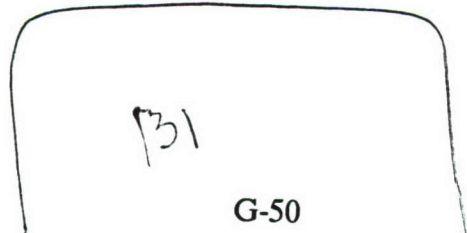
15. Location Sketch/Comments:

3- locations
just of concrete
apron

tennis courts



Victory Garden



residence

1520.m

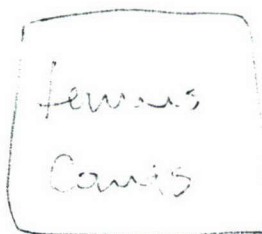
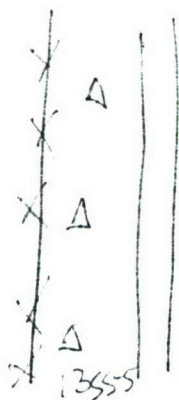
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1355.5 Date: 22 Oct 91 Time: 1025
3. Samplers: 5 in. bailer
4. Photograph: Roll # _____ Frame # 19820
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta _____
Semivolatiles _____	Pesticides _____	RAD Isotopic _____
Metals _____	PCB _____	Other _____
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 12-16
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill
S-Soil R-Rock
15. Location Sketch/Comments: 5-2.5 ft from fence

1520.ad

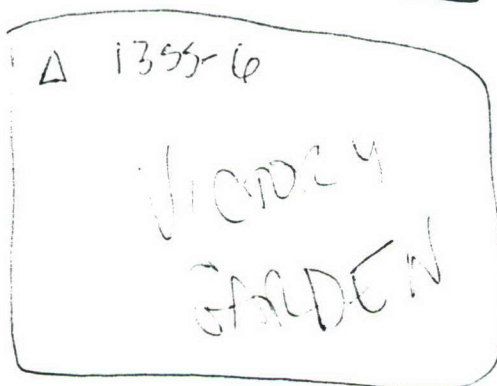


SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1355-6 Date: 22 Oct 91 Time: 1115
3. Samplers: Joe Ruchmer / Mike Wagner
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	_____	RAD Gross Alpha/Beta	<u>4244</u>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	_____	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	_____	Other	<u>pH</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
 Depth Removed (ft): 0-1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
 Stream/Other
10. Sampling Interval (ft) 1-1.5
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 2
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
 Stream/Ditch Sediments S-Soil
 R-Rock
15. Location Sketch/Comments: Behind east corner



1520.ad

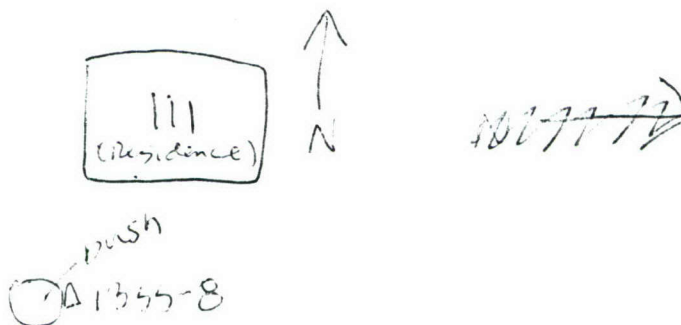
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site NH
2. Sample I.D.: 135-3 Date: 22 Oct 91 Time: 1000
3. Samplers: Sue Handman / Mike Wagner
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta <u>✓</u>
Semivolatiles <u>✓</u>	Pesticides _____	RAD Isotopic <u>✓</u>
Metals <u>✓</u>	PCB _____	Other <u>GR</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 2-1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) 1-14
11. General Texture: Soil loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry Moist
13. Maximum Rock Size (in.) .5
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments: taken under bush



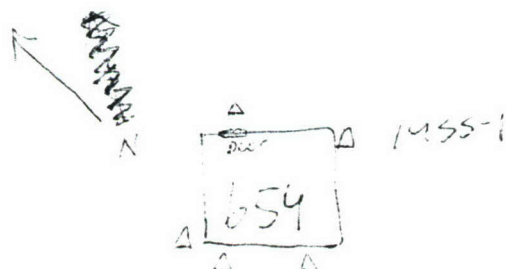
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SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1455-1 Date: 22 Oct 91 Time: 0950
3. Samplers: 500 Handman
4. Photograph: Roll # _____ Frame # 17 17520 18 819
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<u>✓</u>	RAD Isotopic	_____
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u>1</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0-1.6
11. General Texture: Soil loam Sand fine Gravel med Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 3.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments
F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments: 0-12 in from building



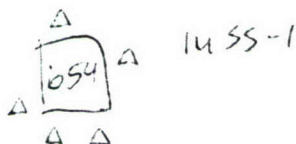
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1455-1 D Date: 22 Oct 91 Time: 0950
3. Samplers: See Family/ Mine Monitor
4. Photograph: Roll # _____ Frame # 12819
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta _____
Semivolatiles _____	Pesticides _____	RAD Isotopic _____
Metals _____	PCB _____	Other _____
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0.1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0.1
11. General Texture: Soil loam Sand S/C Gravel trace Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 3.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: 2-12 m. from building

1520.ad



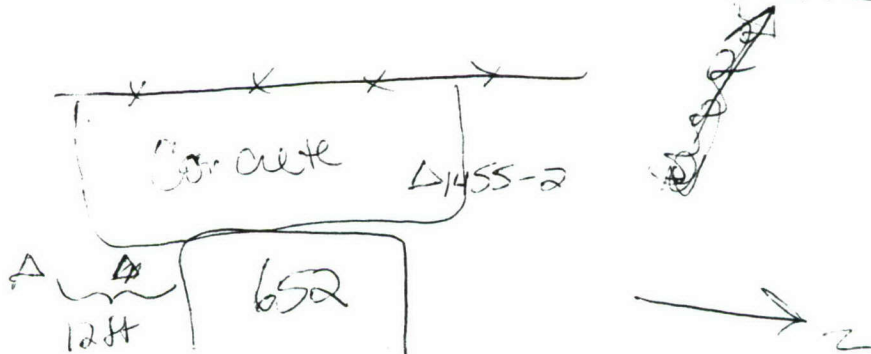
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1455-2 Date: 22 Oct 91 Time: 1400
3. Samplers: Sue Faulkner / Mike Wagner
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	_____	RAD Isotopic	_____
Metals	<u>✓</u>	PCB	_____	Other	<u>propellant / explosive</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1.2
9. Topographic Position: (Flat) Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 1.2-1.0
11. General Texture: Soil Loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 2 in
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	<u>S-Soil</u>
	R-Rock
15. Location Sketch/Comments: 2 - location composite



1520.ad

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1455-2 Date: 20 NOVEMBER 91 Time: 1200
3. Samplers: SHARON CARY
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta _____
Semivolatiles _____	Pesticides _____	RAD Isotopic _____
Metals _____	PCB _____	Other <input checked="" type="checkbox"/> <u>NITRATES</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube _____	CR-Coring Tube _____	P-Petit Ponar _____
<input checked="" type="checkbox"/> Trowel _____	A-Auger Cuttings _____	WK-Wildco KB Corer _____
SS-Split Spoon _____	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0.2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch
Stream/Other
10. Sampling Interval (ft) 0.2 - 1.0
11. General Texture: Soil ☒ loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 2"
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments

F-Fill
☒ S-Soil
 R-Rock
15. Location Sketch/Comments: 2 LOCATION COMPOSITE

(X) = SAMPLE LOCATIONS FOR COMPOSITE SAMPLE



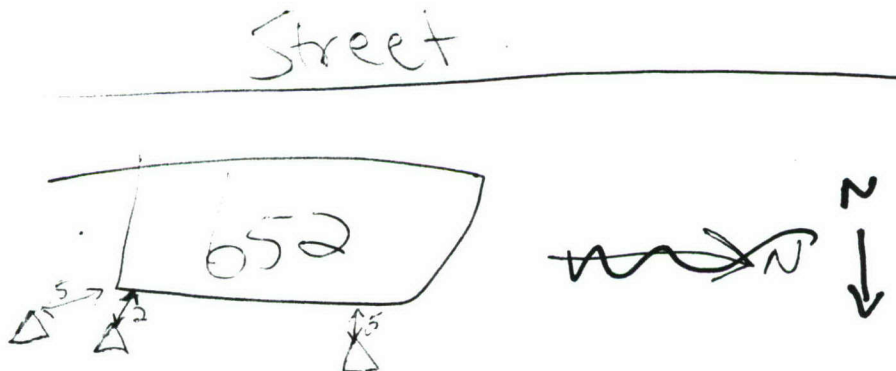
NOTE: SAME LOCATIONS AS SAMPLING EVENT CONDUCTED BY SUE FAULKNER/MIKE WAGNER ON 22 OCTOBER 91 FOR METALS, RAD ISOTOPIC, AND PROPELLANT/EXPLOSIVES

SOIL, SEDIMENT, SURFACE WATERFIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1455-3 Date: 22 Oct 91 Time: 1425 ^{SMF} 1410
3. Samplers: Sue Fairman / Mike Wagner
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta _____
Semivolatiles _____	Pesticides _____	RAD Isotopic _____
Metals <u>✓</u>	PCE _____	Other <u>propellants, explosives</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Sheiby Tube _____	CR-Coring Tube _____	P-Petit Ponar _____
<u>R</u> -Trowel _____	A-Auger Cuttings _____	WK-Wildco KB Corer _____
SS-Split Spoon _____	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0-2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 2-1 ft
11. General Texture: Soil loam Sand M/F Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 3
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:



1520.ad

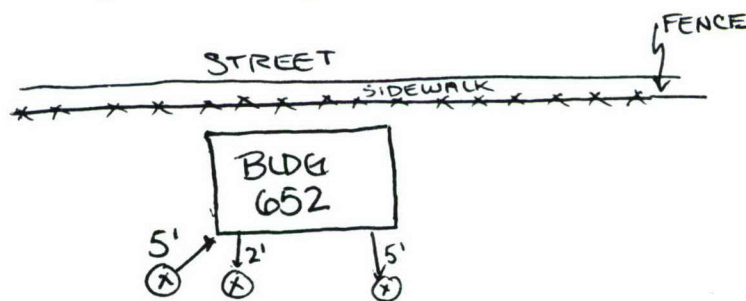
1455-3

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 14SS-3 Date: 20 NOVEMBER 91 Time: 1155
3. Samplers: SHARON GARY
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta _____
Semivolatiles _____	Pesticides _____	RAD Isotopic _____
Metals _____	PCB _____	Other <input checked="" type="checkbox"/> <u>NITRATES</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube _____	CR-Coring Tube _____	P-Petit Ponar _____
<input checked="" type="checkbox"/> T-Trowel _____	A-Auger Cuttings _____	WK-Wildco KB Corer _____
SS-Split Spoon _____	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): .2
9. Topographic Position: ☒ Flat Upland/Sloped Upland/Swale/Drainage Ditch Stream/Other
10. Sampling Interval (ft) 0.2 - 1 ft
11. General Texture: Soil LOAM Sand M/F Gravel _____ Other _____
12. Moisture: Wet/Moist ☒ Dry
13. Maximum Rock Size (in.) 3
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments ☒ F-Fill ☒ S-Soil R-Rock
15. Location Sketch/Comments: 3 LOCATION COMPOSITE



(X) = SAMPLE LOCATION FOR COMPOSITE SAMPLE

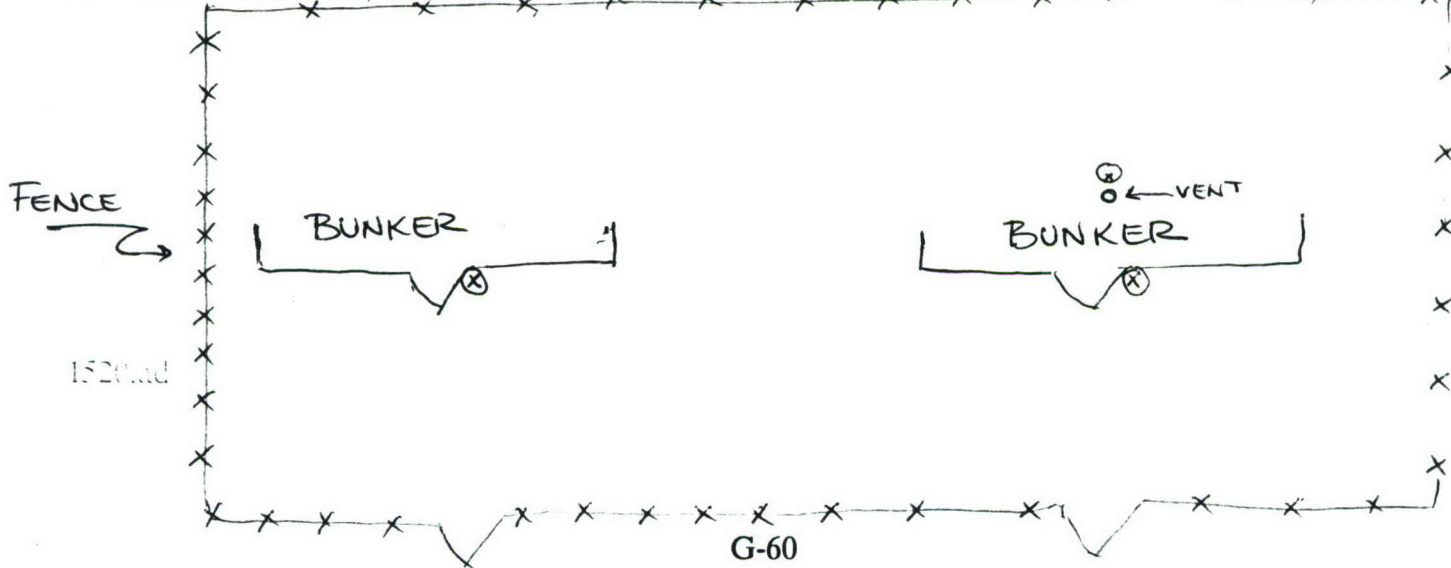
1520and

NOTE: SAME LOCATIONS AS SAMPLING EVENT CONDUCTED BY SUE FAULKNER / MIKE WAGNER ON 22 OCTOBER 91 FOR PESTICIDES AND PROPELLANTS/EXPLOSIVES.

SOIL, SEDIMENT, SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1055-1 Date: 20 NOVEMBER 91 Time: 10:00
3. Samplers: SHARON CARY / LARRY WERTS
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:
- | | | | | | |
|---------------|-------------------------------------|------------|-------------------------------------|----------------------|---|
| Volatiles | _____ | Cyanide | _____ | RAD Gross Alpha/Beta | _____ |
| Semivolatiles | _____ | Pesticides | <input checked="" type="checkbox"/> | RAD Isotopic | _____ |
| Metals | <input checked="" type="checkbox"/> | PCE | _____ | Other | <input checked="" type="checkbox"/> <u>EXPLOSIVES / PROPELLANTS</u> |
| | | | | | <input checked="" type="checkbox"/> <u>NITRATES</u> |
6. Preservatives: 4°C _____ Other: COOL
7. Sampling Method:
- | | | |
|--|------------------|--------------------|
| T-Shelby Tube | CR-Coring Tube | P-Petit Ponar |
| <input checked="" type="checkbox"/> T-R Trowel | A-Auger Cuttings | WK-Wildco KB Corer |
| SS-Split Spoon | Other: _____ | |
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0.5'
9. Topographic Position: Flat: Upland/Sloped Upland/Swale/Drainage Ditch
Stream/Other _____
10. Sampling Interval (ft) 0.5
11. General Texture: Soil ☒ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) $\frac{3}{4}$ - 3"
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments Soil

15. Location Sketch/Comments: 3 LOCATIONS USED FOR COMPOSITE SAMPLES MARKED w/ @ ^{R-Rock}



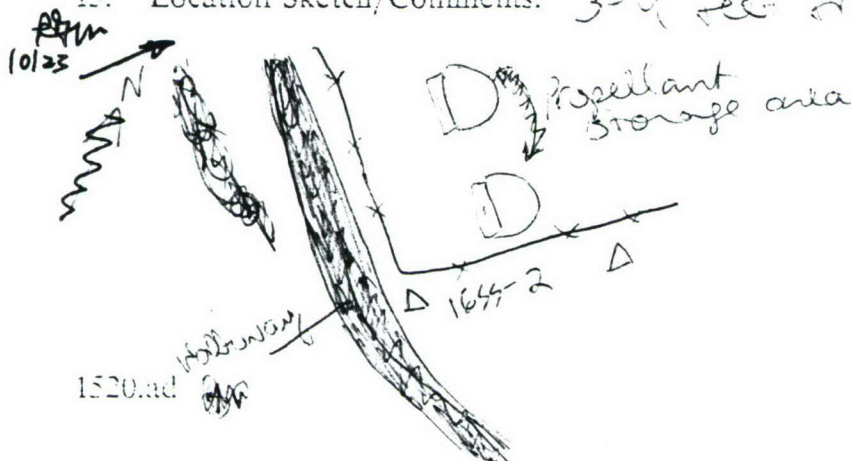
SOIL/SEDIMENT, SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 1655-2 Date: 22 Oct 91 Time: 1205
3. Samplers: Sue Faulthner / Mike Wagner
4. Photograph: Roll # _____ Frame # 25
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta _____
Semivolatiles _____	Pesticides <input checked="" type="checkbox"/>	RAD Isotopic _____
Metals _____	PCB _____	Other <u>propellants/explosives</u>
6. Preservatives: 4°C _____ Other: _____
7. Sampling Method:

T-Shelby Tube _____	CR-Coring Tube _____	P-Petit Ponar _____
<input checked="" type="checkbox"/> Trowel _____	A-Auger Cuttings _____	WK-Wildco KB Corer _____
SS-Split Spoon _____	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other _____
10. Sampling Interval (ft) 1-1.6
11. General Texture: Soil Loam Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock

15. Location Sketch/Comments: 3-4 feet from fence 2 locations for composite

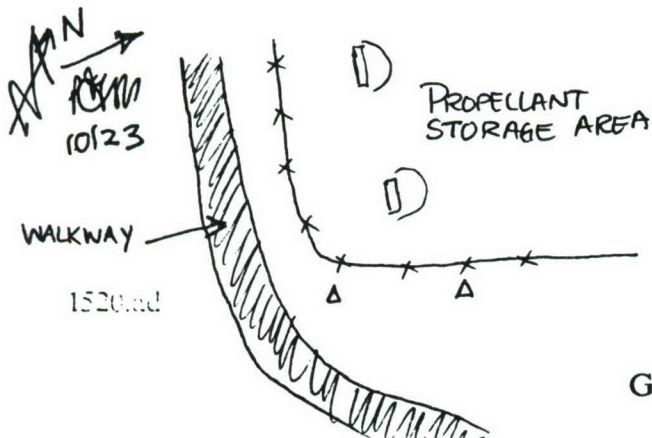


SOIL/SEDIMENT SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 16SS-22 Date: 20 November 91 Time: 10:10
3. Samplers: SHARON CARY
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles _____	Cyanide _____	RAD Gross Alpha/Beta _____
Semivolatiles _____	Pesticides _____	RAD Isotopic _____
Metals _____	PCB _____	Other <u>NITRATES</u>
6. Preservatives: 4°C _____ Other: COOL
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>IR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0.5
9. Topographic Position: Flat Upland Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0.5
11. General Texture: Soil ☒ Sand _____ Gravel _____ Other _____
12. Moisture: Wet Moist Dry
13. Maximum Rock Size (in.) 3/4" - 2"
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: 3-4 feet from fence - 2 locations for composite



NOTE: SAME LOCATIONS AS SAMPLING
EVENT CONDUCTED BY SUE FAULKNER/
MIKE WAGNER ON 22 OCTOBER 91
FOR PESTICIDES, METALS, AND
DROPELLANTS / EXPLOSIVES.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site MTL
2. Sample I.D.: 36SS01D 36SS01RB 36SS01 Date: 1-6-92 Time: 615 AM
3. Samplers: Wince Freeman / Mike Benginger
4. Photograph: Roll # _____ Frame # _____
5. Analyses Requested:

Volatiles	_____	Cyanide	<u>X</u>	RAD Gross Alpha/Beta	<u>X</u>
Semivolatiles	<u>X</u>	Pesticides	<u>X</u>	RAD Isotopic	<u>X</u>
Metals	<u>X</u>	PCB	<u>X</u>	Other	<u>Ammonites, Explosives</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: _____	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): _____
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0-2"
11. General Texture: Soil _____ Sand X Gravel _____ Other X
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) 1.5
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

Sample from bottom of 6'x6'x6' deep hole in basement of Building 36. Hole contains an approximately 500 gallon water tank in the bottom. It is suspected that the hole used to house a hydraulic machine of some sort.

APPENDIX G.3

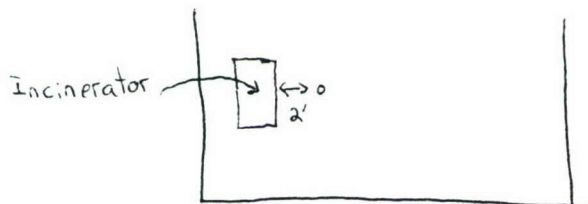
**BUILDING CONCRETE CORING PROGRAM CORE
AND SOIL SAMPLES FIELD SAMPLING LOGS**

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site AMTL
2. Sample I.D.: 43C-1 Date: 20-Dec-91 Time: 0830
3. Samplers: Chris Aas
4. Photograph: Roll # N/A Frame # N/A
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>X</u>
Semivolatiles	_____	Pesticides	_____	RAD Isotopic	<u>X</u>
Metals	_____	PCB	_____	Other	<u>Ra-226</u>
6. Preservatives: 4°C Other: *
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0-4
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments
F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:



sample taken under floor
of 43 after coring operations

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site AMTL
2. Sample I.D.: 43C-2 Date: 20-Dec-91 Time: 0900
3. Samplers: Chris Aas
4. Photograph: Roll # N/A Frame # N/A
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>x</u>
Semivolatiles	_____	Pesticides	_____	RAD Isotopic	<u>x</u>
Metals	_____	PCB	_____	Other	<u>Ra-226</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0.5 ~~1.0~~ 1.0 - 1.4
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments
 F-Fill
S-Soil
 R-Rock
15. Location Sketch/Comments:
see 43C-1

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site AMTL
2. Sample I.D.: 43C-3 Date: 20-Dec-91 Time: 0915
3. Samplers: Chris Aas
4. Photograph: Roll # N/A Frame # N/A
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>X</u>
Semivolatiles	_____	Pesticides	_____	RAD Isotopic	<u>X</u>
Metals	_____	PCB	_____	Other	<u>Ra-226</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1.5
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 1.5-1.9
11. General Texture: Soil Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments
F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:
See 43C-1

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site A MTL
2. Sample I.D.: 43C-4 Date: 20-Dec-91 Time: 0930
3. Samplers: Chris Aus
4. Photograph: Roll # N/A Frame # N/A
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	<u>x</u>
Semivolatiles	_____	Pesticides	_____	RAD Isotopic	<u>x</u>
Metals	_____	PCB	_____	Other	<u>Ra-226</u>
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
<u>TR-Trowel</u>	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 0
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 0-1.4
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	<u>S</u> -Soil
	R-Rock
15. Location Sketch/Comments:
See 43C-1

APPENDIX G.4

**CHARLES RIVER SURFACE WATER/SEDIMENT
SAMPLES FIELD SAMPLING LOGS**

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, MA.
SW/1710 SD/10
2. Sample I.D.: SW/SD17 Date: 10/28/91 Time: 1010
3. Samplers: Lisa Weiss, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<u> </u>	RAD Isotopic	<u> </u>
Metals	<input checked="" type="checkbox"/>	PCB	<u> </u>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HNO₃, HCL, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Kemmer (H₂O) Sampler</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1' to 1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) 1-3' (H₂O)
11. General Texture: Soil Sand Gravel Other Sediments
Substrate: Silt, Clay, Muck-Mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: Directly behind bridge underpass
75'-80' downstream of bridge
near southern underpass
Duplicate Taken here

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown Ma.
SW16 TB
2. Sample I.D.: SW16 Date: 10/28/91 Time: ?
3. Samplers: Lisa Weis, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<u> </u>	RAD Isotopic	<u> </u>
Metals	<input checked="" type="checkbox"/>	PCB	<u> </u>	Other	<u>Mercury, Arsenic</u>
6. Preservatives: 4°C Other: HCl, HNO₃, NaOH
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Kemmer (H₂O) Samplers</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): NA
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) 5-7' (H₂O)
11. General Texture: Soil Sand Gravel ☒ Other cobble
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments: 70' from bridge in center channel
Sediment is gravel / no sediment sample

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army materials Testing Lab, Watertown, MA.
2. Sample I.D.: SU/SD15 Date: 10/28/91 Time: 1230
3. Samplers: Lisa Weiss, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Kemmer (H₂O) Sampler</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) 1-3' (H₂O)
11. General Texture: Soil ☐ Sand ☒ Gravel ☐ Other Silt, Clay, muck-mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category:

U-Unconsolidated Rock/ <u>Sediments</u>	F-Fill
<u>Stream/Ditch Sediments</u>	S-Soil
	R-Rock
15. Location Sketch/Comments: 70' down stream of Northside of Stream

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army materials Testing Lab
SD14P
2. Sample I.D.: Sw/SD14 Date: 10/28/91 Time: 1315
3. Samplers: Lisa Weis, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Surface Grab</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1 - 1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) Surface (1420)
11. General Texture: Soil ☐ Sand ☒ Gravel ☐ Other very little silt and detrital material
12. Moisture: ☒ Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category:

U-Unconsolidated Rock/ <u>Sediments</u>	F-Fill
<u>Stream/Ditch Sediments</u>	S-Soil
	R-Rock
15. Location Sketch/Comments: Water at surface, approx 20' downstream of pipe
water @ just below surface

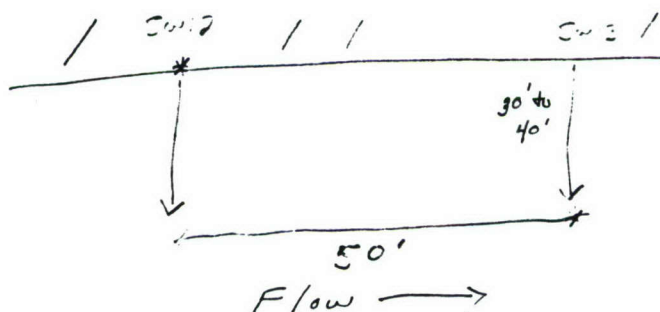
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army materials Testing Lab, Watertown, MA
SW/13RB SD/13RB
2. Sample I.D.: SW/SD13 Date: 10/28/91 Time: 1545
3. Samplers: Lisa Weis, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<u> </u>	RAD Isotopic	<u> </u>
Metals	<input checked="" type="checkbox"/>	PCB	<u> </u>	Other	<u>Mercury, Arsenic, Toc</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Surface Grab</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1 - 1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) surface (H₂O)
11. General Texture: Soil Sand Gravel Other Clay
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments

F-Fill
 S-Soil
 R-Rock
15. Location Sketch/Comments: Sample was taken approx. 50' downstream from SW12 and ~ 30-40' from shore.



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Testing Lab
SW/120 SW/1276
2. Sample I.D.: SW/SD 12 Date: 10/29/91 Time: 0815
3. Samplers: Lisa Weis, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, HAOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	<u>A</u> -Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Grab (H₂O)</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Stream Other Flat Upland/Sloped Upland/Swale/Drainage Ditch/
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil ☐ Sand ☐ Gravel ☐ Other Clay
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

No pipe is located here - it is flagged along the bank. Unable to take pipe samples since we can't locate outfall!! Staked on Bank

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Testing Lab
2. Sample I.D.: SD/SW 11 Date: 10/29/91 Time: 1020
3. Samplers: Lisa Weis, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCl, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Kemmer (H₂O) Samplers</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment +
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 3-5' (H₂O)
11. General Texture: Soil ☐ Sand ☐ Gravel ☐ Other Much-mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category:

U-Unconsolidated Rock/ <u>Sediments</u>	F-Fill
<u>Stream/Ditch Sediments</u>	S-Soil
	R-Rock
15. Location Sketch/Comments:

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Testing Lab, Watertown, Ma.
SD10P
2. Sample I.D.: Sw/SD10 Date: 10/29/91 Time: ?
3. Samplers: Lisa Weiss, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u>✓</u>	Cyanide	<u>✓</u>	RAD Gross Alpha/Beta	<u>✓</u>
Semivolatiles	<u>✓</u>	Pesticides	<u>✓</u>	RAD Isotopic	<u>✓</u>
Metals	<u>✓</u>	PCB	<u>✓</u>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> -Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Surface Grub</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil Sand Gravel Other muck-mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category:

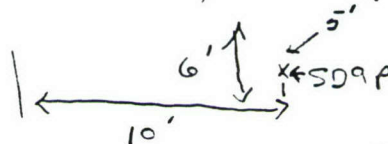
<u>U-Unconsolidated Rock/Sediments</u>	F-Fill
<u>Stream/Ditch Sediments</u>	S-Soil
	R-Rock
15. Location Sketch/Comments:

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, MA.
SW/910 SD910 SW/9RB SD/9RB
2. Sample I.D.: SW/SD 9/SD910 Date: 10/29/91 Time: SW 1520, SD 1535, SD 1600
3. Samplers: Lisa Weiss, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Surface Grab</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Stream/Other Flat Upland/Sloped Upland/Swale/Drainage Ditch/
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil ☐ Sand ☐ Gravel ☐ Other ?
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: Too rocky to sample at Pipe



no detection on HNU or Rad meter - background only

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma.
SD80
2. Sample I.D.: Sw/SD8 Date: 10/29/91 Time: 1345, 1410, 1435
3. Samplers: Lisa Weiss Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TAC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> Petit Ponar
TR-Trowel	<u>A</u> Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Kommerer (H₂O) Sampler</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) 2.5 (H₂O)
11. General Texture: Soil ☐ Sand ☐ Gravel ☐ Other Muck-mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category:

U-Unconsolidated Rock/ <u>Sediments</u>	F-Fill
<u>Stream</u> /Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:

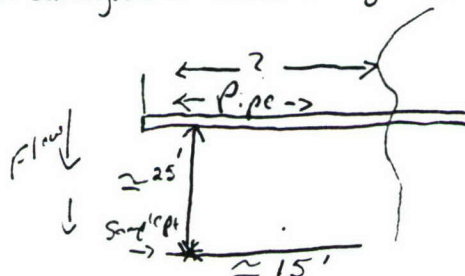
SD-8p - no sample - could not locate pipe.
Slight petroleum odor
HNO₃ - no detection of vapors
Rock meter - not across background

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Testing Lab, Watertown, MA.
2. Sample I.D.: SW/SD 7 Date: 10-30-91 Time: 0220, 0245
3. Samplers: Lisa Weiss, Andy Haines
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Surface Grab</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Stream ☒ Flat ☐ Upland ☐ Sloped Upland ☐ Swale ☐ Drainage Ditch ☐ Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil ☐ Sand ☒ Gravel ☐ Other Muck-mud
Silt, Clay
12. Moisture: ☒ Wet ☐ Moist ☐ Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments ☒ F-Fill
Stream/Ditch Sediments ☐ S-Soil
R-Rock ☐
15. Location Sketch/Comments: Split w / state Contractor
both H₂O and Sediment.
Pipe is submerged - no pipe sediment collected.
Radiometer - 25-30 cpm background - also background only on sediment sample.



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

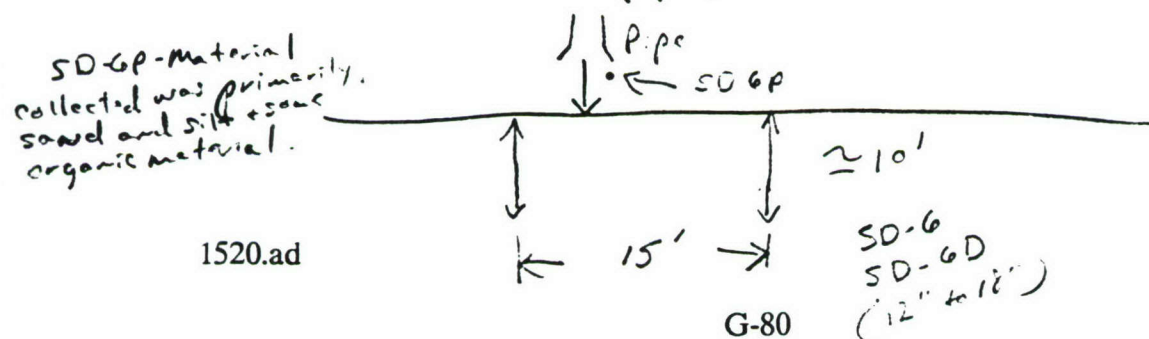
- Site Army Materials Testing Lab, Watertown, Ma.
SD/60 SD/6P 11/6/91 - Time: 0900
- Sample I.D.: Sw/SD6 Date: 11/5/91 Time: 0925, 0945, 1005
- Samplers: Row Wagner, Andy Haines
- Photograph: Roll # NA Frame # NA
- Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
- Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
- Sampling Method:

<u>T-Shelby Tube</u>	<u>CR-Coring Tube</u>	<u>P-Petit Ponar</u>
<u>IR-Trowel</u>	<u>A-Auger Cuttings</u>	<u>WK-Wildco KB Corer</u>
<u>SS-Split Spoon</u>	Other: <u>Surface Grab</u>	
- Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
- Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
- Sampling Interval (ft) surface (H₂O)
- General Texture: Soil ☐ Sand ☒ Gravel ☐ Other Silt and Clay
- Moisture: Wet/Moist/Dry
- Maximum Rock Size (in.)
- Geologic Material Category: U-Unconsolidated Rock/Sediments

<u>Stream/Ditch Sediments</u>	F-Fill
	S-Soil
	R-Rock
- Location Sketch/Comments:

Samples Sw6, SD6 and SD-6D were collected 15' downstream from pipe/ditch outfall



SD-6P collected at pipe discharge pt which is ~ 20'-25' above the river-material collected in deposit and at end of pipe. No odors, stains or other signs of contamination

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site SD/SP
2. Sample I.D.: SD/5, SD/50 Date: 11/5/91 Time: 1110, 1130, 1230
3. Samplers: Andy Haines, Ron Wagner
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles <input checked="" type="checkbox"/>	Cyanide <input checked="" type="checkbox"/>	RAD Gross Alpha/Beta <input checked="" type="checkbox"/>
Semivolatiles <input checked="" type="checkbox"/>	Pesticides <input type="checkbox"/>	RAD Isotopic <input checked="" type="checkbox"/>
Metals <input checked="" type="checkbox"/>	PCB <input type="checkbox"/>	Other <u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	<input checked="" type="checkbox"/> Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Stream/Other Flat Upland/Sloped Upland/Swale/Drainage Ditch/
10. Sampling Interval (ft) _____
11. General Texture: Soil _____ Sand ☒ Gravel ☒ Other muck-mud
Silt, Clay
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: NO surface water collected

SD-5 ^{Collected} 1110
SD-50 1130
SD-SP 1230



SD/50 collected 3' in. front of pipe
and also 5' downstream of pipe.

sediment was more sand and gravel
than SD-6 but had the worst oil sheen
absent of previous samples.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site SD/4P
2. Sample I.D.: SD/4, SD/4D Date: 11/5/91 Time: 1400, 1430, 1510
3. Samplers: Andy Haines, Ron Wagner
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles <input checked="" type="checkbox"/>	Cyanide <input checked="" type="checkbox"/>	RAD Gross Alpha/Beta <input checked="" type="checkbox"/>
Semivolatiles <input checked="" type="checkbox"/>	Pesticides <input type="checkbox"/>	RAD Isotopic <input checked="" type="checkbox"/>
Metals <input checked="" type="checkbox"/>	PCB <input type="checkbox"/>	Other <u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> -Petit Ponar
TR-Trowel	<u>A</u> -Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Stream Flat Upland/Sloped Upland/Swale/Drainage Ditch/Other
10. Sampling Interval (ft) _____
11. General Texture: Soil _____ Sand _____ Gravel _____ Other muck - mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:



1520.ad

flow →
A 1/4" layer of oil material was observed in Sediments
- @ ± 4" to 6" in depth. G-82

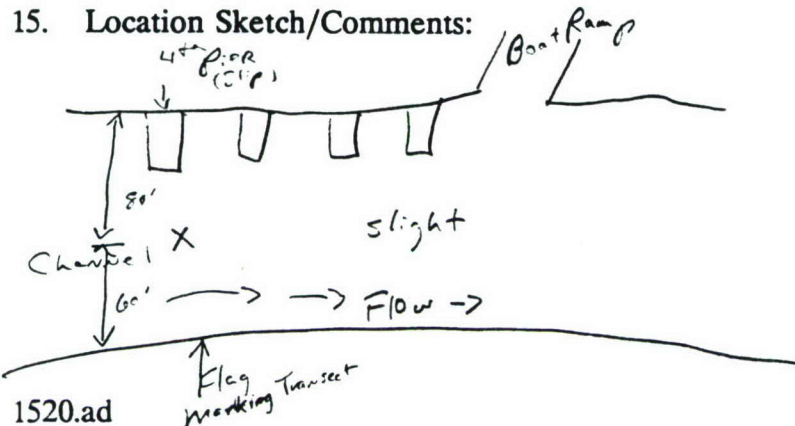
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma.
SW/3RB SW/3DUP
2. Sample I.D.: SW/3 SD/3 Date: 11/6/91 Time: 0930
3. Samplers: Andy Haines, Ron Wagner
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Surface Grab</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil ☐ Sand ☐ Gravel ☐ Other Muck-Mud Silt, Clay
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category: U-Unconsolidated Rock/Sediments
Stream/Ditch Sediments

F-Fill
 S-Soil
 R-Rock

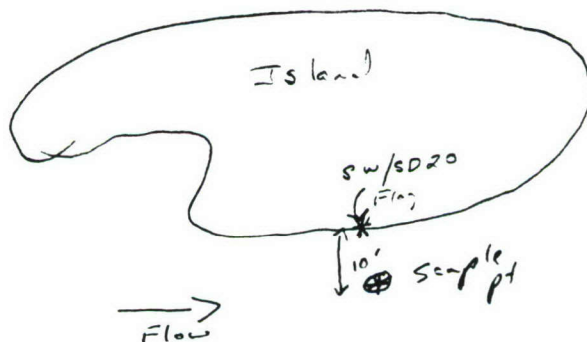


SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma.
2. Sample I.D.: Sw/SD20 Date: 11/6/91 Time: 1025
3. Samplers: Andy Haines, Ron Wagner
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles <input checked="" type="checkbox"/>	Cyanide <input checked="" type="checkbox"/>	RAD Gross Alpha/Beta <input checked="" type="checkbox"/>
Semivolatiles <input checked="" type="checkbox"/>	Pesticides <input checked="" type="checkbox"/>	RAD Isotopic <input checked="" type="checkbox"/>
Metals <input checked="" type="checkbox"/>	PCB <input checked="" type="checkbox"/>	Other <u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, H₂SO₄, NaOH
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P-Petit Ponar</u>
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil ☐ Sand ☐ Gravel ☐ Other muck-mud
Silt + clay
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category: U-Unconsolidated Rock/Sediments
Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:



no shown on surface
or in sediment no
petro analysis - collected
in Lily pad and in
back water area along
island.

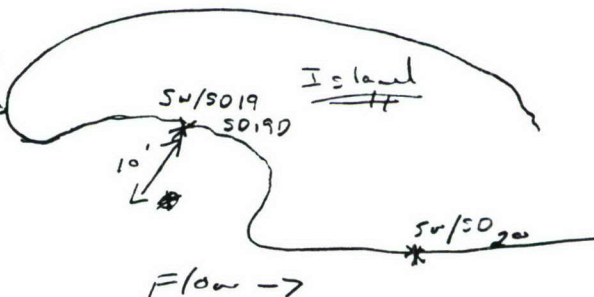
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma.
SD/19RB
2. Sample I.D.: SW/SD19 SQ/19D Date: 11/6/91 Time: 1055, 1105, 1135
3. Samplers: Andy Haines, Ron Wagner
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, NaOH, H₂SO₄
7. Sampling Method:

T-Shelby Tube	<input type="checkbox"/>	CR-Coring Tube	<input checked="" type="checkbox"/>	P-Petit Ponar
TR-Trowel	<input type="checkbox"/>	A-Auger Cuttings	<input checked="" type="checkbox"/>	WK-Wildco KB Corer
SS-Split Spoon	<input type="checkbox"/>	Other:	<u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Stream/Other Flat Upland/Sloped Upland/Swale/Drainage Ditch/
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil ☐ Sand ☐ Gravel ☐ Other Clay-silt
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill S-Soil R-Rock
15. Location Sketch/Comments:

Sediment was thick clay w/ some silt, was 6" or 3"-6" of silt/sandy detritus above clay - oil = brown petroleum odor

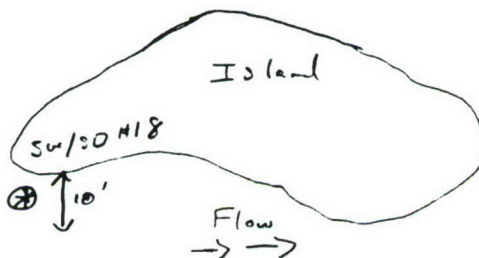


SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma
2. Sample I.D.: SW/SD 18 Date: 11/6/91 Time: 1345
3. Samplers: Andy Haines, Ron Waggoner
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<input checked="" type="checkbox"/>	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	<input checked="" type="checkbox"/>
Semivolatiles	<input checked="" type="checkbox"/>	Pesticides	<input type="checkbox"/>	RAD Isotopic	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>	PCB	<input type="checkbox"/>	Other	<u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, HNO₃, H₂SO₄, NaOH
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P-Petit Ponar</u>
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Surface Grab</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil ☐ Sand ☐ Gravel ☐ Other Silt-Clay
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category: U-Unconsolidated Rock/Sediments
Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:



Sediment sample - light
oil shown + petroleum odor
material collect for sample
silt + clay, w/very little
debris - good sediments

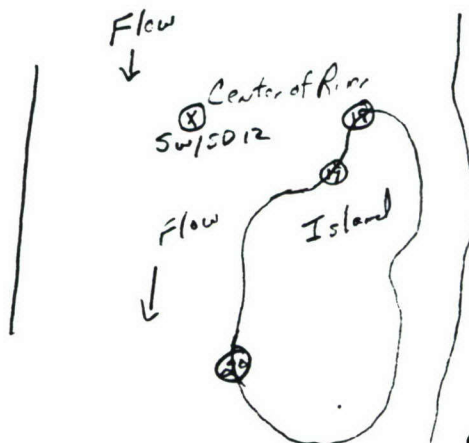
SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army materials Testing Lab, Watertown, Me.
2. Sample I.D.: SW/SD2 Date: 11/6/91 Time: 1425
3. Samplers: Andy Haines, Ron Wagner
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles <input checked="" type="checkbox"/>	Cyanide <input checked="" type="checkbox"/>	RAD Gross Alpha/Beta <input checked="" type="checkbox"/>
Semivolatiles <input checked="" type="checkbox"/>	Pesticides <input type="checkbox"/>	RAD Isotopic <input checked="" type="checkbox"/>
Metals <input checked="" type="checkbox"/>	PCB <input type="checkbox"/>	Other <u>Mercury, Arsenic, TOC</u>
6. Preservatives: 4°C Other: HCL, NaOH, H₂SO₄, HNO₃
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Stream Flat Upland/Sloped Upland/Swale/Drainage Ditch/Other
10. Sampling Interval (ft) surface (H₂O)
11. General Texture: Soil ☐ Sand ☐ Gravel ☐ Other ?
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) ☐
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments

F-Fill
 S-Soil
 R-Rock
15. Location Sketch/Comments:



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Technology Lab, Watertown, MA
2. Sample I.D.: SW16 Date: 15 April 92 Time: 0950
3. Samplers: Andy Howell, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<u>✓</u>	RAD Isotopic	_____
Metals	_____	PCB	<u>✓</u>	Other	_____
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Kemmer (H₂O) Sampler</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): _____
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) 5'-7' (H₂O)
11. General Texture: Soil _____ Sand _____ Gravel _____ Other _____
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments: 70' from bridge in center channel. Sediment is gravel. No sediment sample.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Testing Lab, Watertown, MA.
SD/14P
2. Sample I.D.: SD/SW14 Date: 4/14/92 Time: 1335
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<u>✓</u>	RAD Isotopic	_____
Metals	_____	PCB	<u>✓</u>	Other	_____
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1 - 1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil _____ Sand _____ Gravel _____ Other Silt / Black, Very Fine Organic
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

Sampling locations:

* SD/SW15

* SD/SW14

2014

sediment description same as SD14

1520.ad

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma
2. Sample I.D.: SD/SW15 Date: 4/14-4/15/92 Time: 4/14/92 1330 4/15/92 1420
3. Samplers: Andy Haines, Greg Kraufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<u> </u>	Pesticides	<u>✓</u>	RAD Isotopic	<u> </u>
Metals	<u> </u>	PCB	<u>✓</u>	Other	<u>Hardness, TOC, Hex & Cr +6</u>
6. Preservatives: 4°C Other: H₂SO₄, HNO₃
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> -Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-12
9. Topographic Position: Stream/Other Flat Upland/Sloped Upland/Swale/Drainage Ditch/
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil Sand Gravel Other Silt, Black, Very Fine Organic
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:
Sampling locations are consistent with previous sampling locations. Reference to earlier sketches, or Narrative.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Testing Materials Lab, Watertown, MA.
SW/3 Dup
2. Sample I.D.: SW/5013 Date: 4/14/92 - 4/15/92 Time: 4/14/92 1405 4/15/92 1300
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<u>✓</u>	RAD Isotopic	_____
Metals	_____	PCB	<u>✓</u>	Other	<u>Hlev Cr+6, TOC, Hardness</u>
6. Preservatives: 4°C Other: HNO₃, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	P-Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1 - 1 1/2'
9. Topographic Position: Stream/Other Flat Upland/Sloped Upland/Swale/Drainage Ditch/
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil _____ Sand _____ Gravel _____ Other Clay, Silt
12. Moisture: Wet/Moist/Dry Black, very Fine Organic
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: Sampling Locations are consistent with previous sampling locations. Reference to earlier sketches.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Testing Lab, Watertown, Ma.
SD/12P
2. Sample I.D.: Sw/SD12 Date: 4/14 - 4/15/92 Time: 1420 1410
4/14/92 4/15/92
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<u> </u>	Pesticides	<u> </u>	RAD Isotopic	<u> </u>
Metals	<u> </u>	PCB	<u> </u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

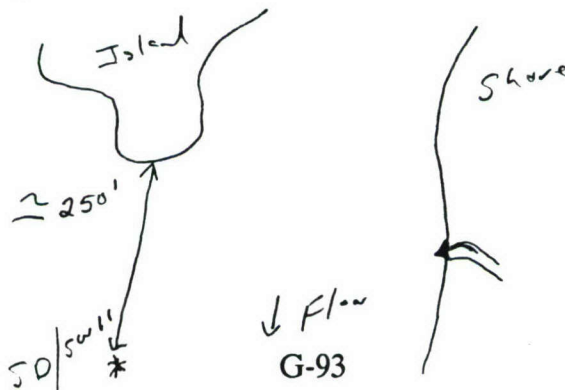
T-Shelby Tube	<u> </u>	CR-Coring Tube	<u> </u>	P-Petit Ponar	<u> </u>
TR-Trowel	<u> </u>	A-Auger Cuttings	<u> </u>	WK-Wildco KB Corer	<u> </u>
SS-Split Spoon	<u> </u>	Other: Surface Grabs	<u> </u>		
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil Sand Gravel Other Clay (SD12, 100% Clay SD/12 4/15/92)
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: Sampling locations are consistent with previous sampling locations. Reference to earlier sketches. Mostly detritus, few stones (small in size < 0.5) and clay. Slightly oil sheen and odor of petroleum.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma.
2. Sample I.D.: SW/5011 Date: 4/14/92 Time: 1445
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<u> </u>	Pesticides	<u>✓</u>	RAD Isotopic	<u> </u>
Metals	<u> </u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Stream Flat Upland/Sloped Upland/Swale/Drainage Ditch/Other
10. Sampling Interval (ft) surface (H2O)
11. General Texture: Soil Sand Gravel Other Muck - Mud
12. Moisture: Wet/Moist/Dry Coarse Plant Materials Black
13. Maximum Rock Size (in.) Very Fine Organic
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments: Sampling locations are consistent with previous sampling locations. Reference to earlier sketches

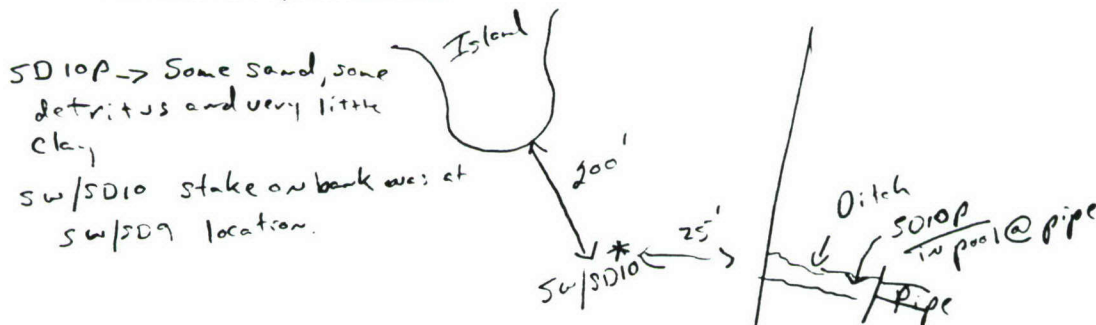


SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma.
SD/10P
2. Sample I.D.: SW/SD10 Date: 4-14-92 Time: 1505
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	_____	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<input checked="" type="checkbox"/>	RAD Isotopic	_____
Metals	_____	PCB	<input checked="" type="checkbox"/>	Other	_____
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil _____ Sand _____ Gravel _____ Other Silt, muck-mud
12. Moisture: Wet/Moist/Dry
Black Very Fine Organic
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments
Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

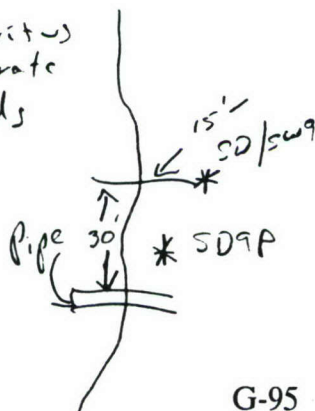
1. Site Army Materials Testing Lab, Watertown, Ma.
SD/9P
2. Sample I.D.: SW/SD9 Date: 4/14/92 Time: 1530
3. Samplers: Andy Haines, Greg Krautman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	_____	Cyanide	_____	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<input checked="" type="checkbox"/>	RAD Isotopic	_____
Metals	_____	PCB	<input checked="" type="checkbox"/>	Other	_____
6. Preservatives: 4°C Other: _____
7. Sampling Method:

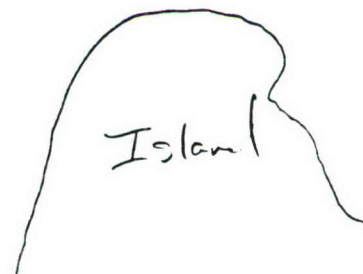
T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other _____
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil _____ Sand _____ Gravel _____ Other Silt muck-mud
12. Moisture: Wet/Moist/Dry Black Very Fine Organic
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments

F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:

SD9 - mostly detritus
w/ some silt moderate
sheen - amphipods
abundant



SD9P - silt, muck mud, slight
sheen, no odor



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

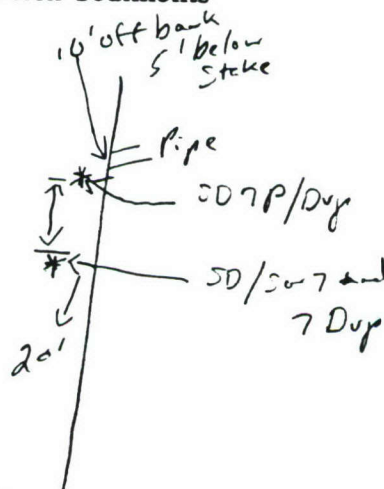
1. Site Army Materials Testing Lab, Watertown, Me.
SD/7P SD/7DP
2. Sample I.D.: SD/507 SD/7P Date: 4/14/92 Time: 1550
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	_____	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<input checked="" type="checkbox"/>	RAD Isotopic	_____
Metals	_____	PCB	<input checked="" type="checkbox"/>	Other	_____
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage, Ditch/Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil _____ Sand _____ Gravel _____ Other Silt, Muck-muck
12. Moisture: Wet/Moist/Dry Black Very Fine Organic
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments

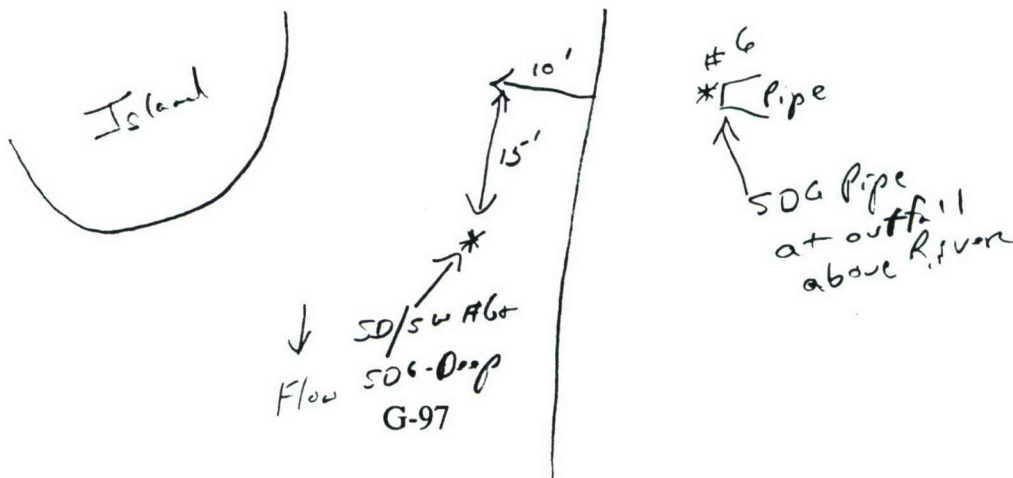
F-Fill
 S-Soil
 R-Rock
15. Location Sketch/Comments:

Time of Rise Blank Island 25'
1655



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma.
SD/GDP sw/GDP SDGP
2. Sample I.D.: SD/SWG SD/GRO Date: 4/15/92 Time: 0750, 1020
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:
 Volatiles Cyanide / RAD Gross Alpha/Beta
 Semivolatiles Pesticides / RAD Isotopic
 Metals PCB / Other TOC, Hachures, Cr+4
6. Preservatives: 4°C Other: H₂SO₄, HNO₃
7. Sampling Method:
 T-Shelby Tube CR-Coring Tube P Petit Ponar
 TR-Trowel A Auger Cuttings WK-Wildco KB Corer
 SS-Split Spoon Other: Surface Grab
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
 Depth Removed (ft): 1-1 1/2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil Sand / Gravel Other Silt, muck-mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
 R-Rock
15. Location Sketch/Comments:



SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site SD/5
2. Sample I.D.: SD/5D SD/5P Date: 4/15/92 Time: 1040, 1045, 1050
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	_____	Cyanide	<u>/</u>	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<u>/</u>	RAD Isotopic	_____
Metals	_____	PCB	<u>/</u>	Other	_____
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> Petit Ponar
TR-Trowel	<u>A</u> Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
 Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) No H₂O Samples
11. General Texture: Soil _____ Sand / Gravel _____ Other muck-mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:

land use - adjacent to yacht club

Sampling locations are consistent with previous sampling locations.
Reference to earlier sketches.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown Me.
2. Sample I.D.: SD4 SD/4D ^{SD/4P} Date: 4-15-92 Time: 1110, 1120, 1115
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	_____	Cyanide	<input checked="" type="checkbox"/>	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<input checked="" type="checkbox"/>	RAD Isotopic	_____
Metals	_____	PCB	<input checked="" type="checkbox"/>	Other	_____
6. Preservatives: 4°C Other: _____
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<input checked="" type="checkbox"/> Petit Ponar
TR-Trowel	<input checked="" type="checkbox"/> Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediment
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) No water samples
11. General Texture: Soil _____ Sand ☒ Gravel _____ Other Much-mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.) _____
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:

SD4-Some detritus / no odor slight sheen, dark brown color
algae on surface, filamentous green algae

SD4-Deep Bucket auger, strong potato odor, sheen,
sand, small gravel, much/mud, deeper than shallow SD/G.

SD4 Pipe - oil and sand deposits / packed / mud-much
10% sand - odor moderate, sheen

1520.ad Sampling locations are consistent with previous sampling
locations. Reference to earlier sketches.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Testing Lab, Watertown, Ma.
2. Sample I.D.: SW/SD3 Date: 4/15/92 Time: 1140, 1145
3. Samplers: Ardy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<u> </u>	Pesticides	<u>✓</u>	RAD Isotopic	<u> </u>
Metals	<u> </u>	PCB	<u>✓</u>	Other	<u>Hardness, TOC</u>
6. Preservatives: 4°C Other: HNO₃, H₂SO₄
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Surface Grabs</u>
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/Stream/Other
10. Sampling Interval (ft) Surface
11. General Texture: Soil Sand Gravel Other muck/mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category:

U-Unconsolidated Rock/ <u>Sediments</u>	F-Fill
<u>Stream</u> /Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:
Sampling locations are consistent with previous sampling locations. Reference to earlier sketches

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Testing Lab, Watertown, Ma.
SD/190
2. Sample I.D.: SW/SD19 Date: 4/15/92 Time: 1315, 1320, 1325
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<u> </u>	Pesticides	<u> ✓ </u>	RAD Isotopic	<u> </u>
Metals	<u> </u>	PCB	<u> ✓ </u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u> B </u> -Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil Sand ✓ Gravel Other muck-mud
some detritus
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, Stream/Ditch Sediments
F-Fill
S-Soil
R-Rock
15. Location Sketch/Comments:

SD19 - amphipod observed in sediment + sample
some sand, detritus - mostly muck-mud -
no thalassiodora. Some algae in sediment + filament

SD19 Deep - mostly clay - dry

Sampling locations are consistent with previous sampling
locations. Reference to location sketches.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Material Testing Lab, Watertown, Me.
2. Sample I.D.: SW/SD18 Date: 4-15-72 Time: 1300, 1345
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<u> </u>	Pesticides	<u>✓</u>	RAD Isotopic	<u> </u>
Metals	<u> </u>	PCB	<u>✓</u>	Other	<u> </u>
6. Preservatives: 4°C Other:
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> -Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) Surface (1/2")
11. General Texture: Soil Sand Gravel Other muck/mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category:

U-Unconsolidated Rock/Sediments,	F-Fill
Stream/Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:

Filamentous Algae on surface of substrate - no odor or sheen - macroinvertebrates in substrate.

Sampling locations are consistent with previous sampling locations. Reference to earlier sketches.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Test Lab, Watertown, Ma.
2. Sample I.D.: Sw/SD2 Date: 4-15-92 Time: 1350, 1355
3. Samplers: Andy Harms, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<u> </u>	Pesticides	<u> </u>	RAD Isotopic	<u> </u>
Metals	<u> </u>	PCB	<u> </u>	Other	<u>Handwss, TOC</u>
6. Preservatives: 4°C Other: H₂SO₄, HNO₃
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) Surface (H₂O)
11. General Texture: Soil Sand Gravel Other muck-mud
12. Moisture: Wet/Moist/Dry no snow
13. Maximum Rock Size (in.)
14. Geologic Material Category:

U-Unconsolidated Rock/ <u>Sediments</u>	F-Fill
<u>Stream</u> /Ditch Sediments	S-Soil
	R-Rock
15. Location Sketch/Comments:

Sampling locations are consistent with previous sampling locations. Reference to earlier sketches.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG

1. Site Army Materials Test Lab, Watertown, Ma.
2. Sample I.D.: SW/2017 Date: 4/15/92 Time: 1450, 1455
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> ✓ </u>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<u> </u>	Pesticides	<u> ✓ </u>	RAD Isotopic	<u> </u>
Metals	<u> </u>	PCB	<u> ✓ </u>	Other	<u>Hex Cr +4</u>
6. Preservatives: 4°C Other: HNO₃
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> -Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2'
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) surface (H₂O)
11. General Texture: Soil Sand ✓ Gravel Other Silt
12. Moisture: Wet/Moist/Dry Slight sheen
no odor
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:
Sampling locations are consistent with previous
sampling locations. Reference to earlier sketches;

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Test Lab, Watertown, Ma.
2. Sample I.D.: SW/SD8 50/8D Date: 4-15-92 Time: 1530, 1535, 1540
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA
5. Analyses Requested:

Volatiles	<u> </u>	Cyanide	<u> </u>	RAD Gross Alpha/Beta	<u> </u>
Semivolatiles	<u> </u>	Pesticides	<u> </u>	RAD Isotopic	<u> </u>
Metals	<u> </u>	PCB	<u> </u>	Other	<u>TOC, Hardness, C-14</u>
6. Preservatives: 4°C Other: H₂SO₄, HNO₃
7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> -Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other: <u>Surface Grab</u>	
8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other
Depth Removed (ft): 1-1 1/2
9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other
10. Sampling Interval (ft) Surface H₂O
11. General Texture: Soil Sand Gravel Other muck-mud
12. Moisture: Wet/Moist/Dry
13. Maximum Rock Size (in.)
14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock
15. Location Sketch/Comments:

SD8 - very little detritus - no sheen or odor
filamentous algae on surface of substrate
SD8 Deep - mostly muck/mud/powder/detritus
- mod. sheen and heavy potes odor - m.d. dry.

SOIL/SEDIMENT/SURFACE WATER FIELD SAMPLING LOG'

1. Site Army Materials Test Lab, Watertown, Ma.
2. Sample I.D.: SD20 Date: 4-15-92 Time: 1550, 1600
3. Samplers: Andy Haines, Greg Kaufman
4. Photograph: Roll # NA Frame # NA

5. Analyses Requested:

Volatiles	_____	Cyanide	<u>/</u>	RAD Gross Alpha/Beta	_____
Semivolatiles	_____	Pesticides	<u>/</u>	RAD Isotopic	_____
Metals	_____	PCB	<u>/</u>	Other	<u>Hex Cr⁶⁺</u>

6. Preservatives: 4°C Other: HNO₃

7. Sampling Method:

T-Shelby Tube	CR-Coring Tube	<u>P</u> Petit Ponar
TR-Trowel	A-Auger Cuttings	WK-Wildco KB Corer
SS-Split Spoon	Other:	<u>Surface Grab</u>

8. Surface: Gravel/Leaves/Vegetation/Soil/Road/Other Sediments
Depth Removed (ft): 1-1 1/2

9. Topographic Position: Flat Upland/Sloped Upland/Swale/Drainage Ditch/
Stream/Other

10. Sampling Interval (ft) Surface (H₂O)

11. General Texture: Soil _____ Sand _____ Gravel _____ Other muck/mud

12. Moisture: Wet/Moist/Dry

13. Maximum Rock Size (in.) _____

14. Geologic Material Category: U-Unconsolidated Rock/Sediments, F-Fill
Stream/Ditch Sediments S-Soil
R-Rock

15. Location Sketch/Comments:

SD20 - filamentous algae @ surface of substrate
no odor, no green macroinvertebrates observed.
Sampling locations are consistent with previous sampling
Locations. Reference to earlier sketches.

Appendix H

Storm and Sanitary Sewer Investigations

APPENDIX H.1
STORMWATER FLOW DATA

MTLBACK1.XLS

			Army Materials Technical Laboratory						
			Watertown, MA.						
			Stormwater Monitoring Program						
			Background Location 1						
Date	Period	Period	Maximum	Minimum	Maximum	Minimum	Average	Interval	Total
	Beginning	Ending	Depth	Depth	Flow Rate	Flow Rate	Flow Rate	Flow Volume	Flow Volume
			(feet)	(feet)	(gpm)	(gpm)	(gpm)	(gal)	
8-Dec-91	10:38	10:34	0.013	0	80	80	0	0	0
	10:47	10:52	0.121	0.114	270	90	210	0	0
9-Dec-91	16:56	17:03	0.114	0.039	80	0	10	100	0
	17:30	18:30	0.055	0.05	10	10	10	900	1300
	18:30	19:30	0.06	0.052	20	10	10	900	2300
	19:30	20:30	0.054	0.051	10	10	10	900	3200
	20:30	21:30	0.054	0.052	10	10	10	900	4200
	21:30	22:30	0.054	0.043	10	0	0	900	5100
	22:30	23:30	0.054	0.05	10	10	10	900	6100
10-Dec-91	23:30	0:30	0.053	0.049	10	10	10	800	6900
	0:30	1:30	0.052	0.05	10	10	10	800	7800
	1:30	2:30	0.052	0.049	10	10	10	800	8700
	2:30	3:30	0.053	0.048	10	10	10	800	9600
	3:30	4:30	0.066	0.051	20	10	10	1000	10700
	4:30	5:30	0.065	0.057	20	10	10	1200	11900
	5:30	6:30	0.059	0.053	10	10	10	1000	13000
	6:30	7:30	0.059	0.052	10	10	10	900	14000
	7:30	8:30	0.066	0.056	20	10	10	1300	15300
	8:30	9:30	0.064	0.055	20	10	10	1100	16500
	9:30	10:30	0.061	0.053	20	10	10	1100	17600
	10:30	11:30	0.057	0.051	10	10	10	1000	18600
	11:30	12:30	0.054	0.05	10	10	10	900	19500
	12:30	13:26	0.052	0.049	10	10	10	800	20400
13-Dec-91	17:45	18:45	0.055	0.049	14	1	6	700	700
	18:45	19:45	0.059	0.048	17	11	11	700	1400
	19:45	20:45	0.058	0.046	17	10	10	600	2100
	20:45	21:45	0.056	0.046	15	10	10	600	2800
	21:45	22:45	0.057	0.046	16	10	10	600	3400
	22:45	23:45	0.056	0.045	15	9	9	600	4000
	23:45	0:45	0.055	0.044	15	9	9	600	4600
	0:45	1:45	0.057	0.044	16	9	9	600	5300
	1:45	2:45	0.055	0.043	15	8	9	500	5800
	2:45	3:45	0.057	0.043	16	8	8	500	6400
	3:45	4:45	0.055	0.044	15	9	11	600	7100
	4:45	5:45	0.058	0.047	17	10	10	600	7800
	5:45	6:45	0.093	0.046	46	10	17	1000	8800
	6:45	7:45	0.131	0.089	98	42	47	2800	11700
	7:45	8:45	0.405	0.142	1048	116	509	30800	42600
	8:45	9:45	0.198	0.153	234	135	184	11100	53700
	9:45	10:45	0.277	0.155	478	139	285	17200	70900
	10:45	11:45	0.275	0.192	470	221	335	20200	91200
	11:45	12:45	0.325	0.19	667	215	488	29400	120600

MTLBACK2.XLS

			Army Materials Technical Laboratory						
			Watertown, MA.						
			Stormwater Monitoring Program						
			Background Location 2						
Date	Period	Period	Maximum	Minimum	Maximum	Minimum	Average	Interval	Total
	Beginning	Ending	Depth	Depth	Flow Rate	Flow Rate	Flow Rate	Flow Volume	Flow Volume
			(feet)	(feet)	(gpm)	(gpm)	(gpm)	(gal)	
10-Dec-91	2:00	3:00	0.112	0.047	53	7	28	2500	49800
	3:00	4:00	0.111	0.060	53	13	41	2400	52200
	4:00	5:00	0.107	0.051	48	9	38	2200	54500
	5:00	6:00	0.107	0.071	48	19	39	2400	56900
	6:00	7:00	0.110	0.073	51	21	43	2500	59500
	7:00	8:00	0.106	0.052	47	9	37	2300	61900
	8:00	9:00	0.107	0.055	48	11	39	2300	64200
	9:00	10:00	0.109	0.040	50	5	36	2100	66400
	10:00	11:00	0.102	0.044	44	6	36	2100	68600
	11:00	12:00	0.103	0.037	44	4	31	1900	70500
	12:00	13:00	0.098	0.036	40	4	33	1900	72500
	13:00	14:00	0.099	0.057	41	12	31	2000	74500
	14:00	15:00	0.101	0.036	42	4	33	2000	76600
	15:00	16:00	0.101	0.049	43	8	36	2100	78700
	16:00	17:00	0.107	0.062	48	15	39	2300	81100
	17:00	18:00	0.105	0.073	47	21	38	2200	83400
	18:00	19:00	0.103	0.067	44	17	37	2200	85600
	19:00	20:00	0.106	0.067	47	17	39	2300	87900
	20:00	21:00	0.103	0.065	45	16	37	2100	90100
	21:00	22:00	0.103	0.070	44	19	38	2200	92400
	22:00	23:00	0.102	0.073	43	21	33	2000	94400
	23:00	0:00	0.093	0.031	36	2	28	1700	96100
11-Dec-91	0:00	1:00	0.101	0.045	43	7	32	1900	98000
	1:00	2:00	0.098	0.056	40	11	33	1900	100000
13-Dec-91	15:00	15:36	0.142	0.087	89	31	56	2000	236300
	16:00	17:00	0.125	0.110	43	32	35	2220	2600
	17:00	18:00	0.126	0.083	43	17	34	2030	4640
	18:00	19:00	0.121	0.053	39	6	33	1980	6620
	19:00	20:00	0.121	0.011	39	0	33	2000	8620
	20:00	21:00	0.119	0.066	38	10	32	1950	10570
	21:00	22:00	0.118	0.063	38	9	31	1850	12430
	22:00	23:00	0.112	0.056	33	7	28	1710	14150
	23:00	0:00	0.117	0.056	37	7	29	1730	15880
14-Dec-91	0:00	1:00	0.114	-0.188	36	0	29	1760	17640
	1:00	2:00	0.120	0.059	39	8	30	1810	19460
	2:00	3:00	0.116	0.063	36	10	30	1800	21260
	3:00	4:00	0.110	0.069	32	11	28	1680	22940
	4:00	5:00	0.118	0.072	37	13	29	1720	24670
	5:00	6:00	0.118	0.014	37	0	31	1870	26550
	6:00	7:00	0.115	0.040	36	3	31	1850	28400
	7:00	8:00	0.113	0.051	34	6	29	1810	30210
	8:00	9:00	0.117	0.073	37	13	31	1850	32070
	9:00	10:00	0.112	0.051	33	6	37	1730	33810
	10:00	10:07	0.106	0.060	30	8	23	160	33980
	10:43	10:43	0.103	0.103	28	28	28	10	3390

			Army Materials Technical Laboratory						
			Watertown, MA.						
			Stormwater Monitoring Program						
			Outfall 001						
Date	Period	Period	Maximum	Minimum	Maximum	Minimum	Average	Interval	Total
	Beginning	Ending	Depth	Depth	Flow Rate	Flow Rate	Flow Rate	Flow Volume	Flow Volume
			(feet)	(feet)	(gpm)	(gpm)	(gpm)	(gal)	(gal)
10-Dec-91	2:00	3:00	0.051	0.048	0	0	0	0	600
	3:00	4:00	0.063	0.048	10	0	0	600	11500
	4:00	5:00	0.064	0.050	10	10	10	700	12300
	5:00	6:00	0.069	0.050	20	10	10	700	13000
	6:00	7:00	0.065	0.049	10	10	10	600	13700
	7:00	8:00	0.064	0.050	10	10	10	700	14400
	8:00	9:00	0.071	0.053	10	10	10	800	15300
	9:00	10:00	0.068	0.052	20	10	10	700	16000
	10:00	11:00	0.067	0.050	20	10	10	700	16800
	11:00	12:00	0.066	0.048	10	0	0	600	17400
	12:00	13:00	0.063	0.048	10	0	0	600	18100
	13:00	14:00	0.062	0.048	10	0	0	600	18700
	14:00	15:00	0.059	0.047	10	0	0	600	19300
	15:00	16:00	0.059	0.046	10	0	0	500	19900
	16:00	17:00	0.057	0.046	10	0	0	500	20400
	17:00	18:00	0.059	0.048	10	0	0	600	21100
	18:00	19:00	0.058	0.047	10	0	0	600	21700
	19:00	20:00	0.059	0.046	10	0	0	500	22200
	20:00	21:00	0.059	0.046		0	0	500	22800
	21:00	22:00							
	22:00	23:00							
	23:00	0:00							
13-Dec-91	14:00	14:15	0.067	0.044	20	0	0	100	58800
	14:30	15:30	0.059	0.038	28	10	21	1100	1200
	15:30	16:30	0.064	0.036	34	9	18	1100	2300
	16:30	17:30	0.061	0.035	31	9	16	1000	3300
	17:30	18:30	0.063	0.031	32	6	14	900	4300
	18:30	19:30	0.049	0.035	19	9	11	700	5000
	19:30	20:30	0.055	0.036	24	9	12	700	5700
	20:30	21:30	0.053	0.028	22	5	10	700	6400
	21:30	22:30	0.049	0.034	19	8	10	600	7100
	22:30	23:30	0.054	0.033	24	8	10	700	7800
	23:30	0:30	0.049	0.028	19	5	10	600	6400
14-Dec-91	0:30	1:30	0.050	0.027	20	5	9	600	9100
	1:30	2:30	0.055	0.021	24	2	9	600	9700
	2:30	3:30	0.052	0.034	22	8	12	800	10500
	3:30	4:30	0.054	0.030	24	6	9	600	11100
	4:30	5:30	0.052	0.027	21	5	11	700	11900
	5:30	6:30	0.047	0.026	17	4	11	700	12600
	6:30	7:30	0.066	0.040	36	12	25	1500	14200
	7:30	8:30	0.024	0.050	5533	19	300	17900	32100
	8:30	9:30	0.022	0.151	489	217	299	18000	50200
	9:30	10:30	0.232	0.144	535	194	303	18100	68300
	10:30	10:44	0.239	0.003	569	0	428	6500	74800

Army Materials Technical Laboratory									
Watertown, MA.									
Stormwater Monitoring Program									
Outfall 002									
Date	Period	Period	Maximum	Minimum	Maximum	Minimum	Average	Interval	Total
	Beginning	Ending	Depth	Depth	Flow Rate	Flow Rate	Flow Rate	Flow Volume	Flow Volume
			(feet)	(feet)	(gpm)	(gpm)	(gpm)	(gal)	
8-Dec-91	14:50	15:50	0.008	0.000	0	0	0	0	0
	15:50	16:50	0.016	0.002	0	0	0	0	0
	16:50	17:50	0.021	0.002	1	0	0	0	0
	17:50	18:50	0.020	0.002	1	0	0	0	0
	18:50	19:50	0.016	0.001	0	0	0	0	0
	19:50	20:50	0.016	0.000	0	0	0	0	0
	20:50	21:50	0.020	0.004	1	0	0	0	0
	21:50	22:50	0.019	0.004	0	0	0	0	0
	22:50	23:50	0.019	0.001	0	0	0	0	0
9-Dec-91	23:50	0:50	0.017	-0.001	0	0	0	0	0
	0:50	1:50	0.017	-0.001	0	0	0	0	0
	1:50	2:50	0.017	0.003	0	0	0	0	0
	2:50	3:50	0.018	0.003	0	0	0	0	0
	3:50	4:50	0.017	0.000	0	0	0	0	0
	4:50	5:50	0.017	0.000	0	0	0	0	0
	5:50	6:50	0.084	0.004	28	0	15	900	900
	6:50	7:50	0.092	0.073	35	21	26	1600	2500
	7:50	8:50	0.097	0.070	39	19	28	1700	4200
	8:50	9:50	0.108	0.053	49	10	16	1000	5300
	9:50	10:50	0.068	0.050	18	9	10	600	5900
	10:50	11:50	0.065	0.005	16	0	2	100	6100
	11:50	12:50	0.019	0.005	0	0	0	0	6100
	12:50	13:50	0.018	0.004	0	0	0	0	6100
	13:50	14:50	0.088	0.005	31	0	12	700	6900
	14:50	15:50	0.074	0.052	22	10	12	800	7700
	15:50	16:50	0.069	0.049	19	8	9	600	8300
	16:50	17:50	0.065	0.046	16	7	8	500	8800
	17:50	18:50	0.069	0.043	18	6	11	700	9600
	18:50	19:50	0.070	0.051	19	9	10	600	10200
	19:50	20:50	0.069	0.050	19	9	10	600	10900
	20:50	21:50	0.072	0.052	20	10	10	600	11600
	21:50	22:50	0.066	0.046	17	7	9	600	12200
	22:50	23:50	0.064	0.023	15	1	7	400	12600
	23:50	0:50	0.031	0.004	3	0	0	0	12600
10-Dec-91	0:50	1:50	0.060	0.003	13	0	2	100	12800
	1:50	2:50	0.074	0.049	22	8	10	600	13500
	2:50	3:50	0.075	0.048	22	8	11	700	14200
	3:50	4:50	0.093	0.053	36	10	13	800	15100
	4:50	5:50	0.081	0.051	26	9	10	600	15700
	5:50	6:50	0.095	0.060	37	14	17	1000	16800
	6:50	7:50	0.084	0.053	28	10	12	700	17600
	7:50	8:17	0.070	0.052	19	10	10	300	17900

			Army Materials Technical Laboratory						
			Watertown, MA.						
			Stormwater Monitoring Program						
			Outfall 002						
Date	Period	Period	Maximum	Minimum	Maximum	Minimum	Average	Interval	Total
	Beginning	Ending	Depth	Depth	Flow Rate	Flow Rate	Flow Rate	Flow Volume	Flow Volume
			(feet)	(feet)	(gpm)	(gpm)	(gpm)	(gal)	
13-Dec-91	16:03	16:11	0.059	-0.009	13	0	9	0	18000
	16:30	17:30	0.057	0.048	18	12	15	900	1000
	17:30	18:30	0.069	0.049	26	12	14	900	2000
	18:30	19:30	0.068	0.048	25	12	13	800	2800
	19:30	20:30	0.066	0.023	24	2	11	700	3600
	20:30	21:30	0.038	0.000	7	0	0	0	3600
	21:30	22:30	0.019	0.003	1	0	0	0	3600
	22:30	23:30	0.017	0.003	1	0	0	0	3600
14-Dec-91	23:30	0:30	0.019	0.004	1	0	0	0	3600
	0:30	1:30	0.020	0.000	1	0	0	0	3600
	1:30	2:30	0.019	0.001	1	0	0	0	3600
	2:30	3:30	0.021	0.001	1.00	0.00	0.00	0	3600
	3:30	4:30	0.019	0.001	1.00	0.00	0.00	0	3600
	4:30	5:30	0.021	0.001	1.00	0.00	0.00	0	3600
	5:30	6:30	0.022	0.004	2.00	0.00	0.00	0	3600
	6:30	7:30	0.061	0.003	20.00	0.00	9.00	500	4200
	7:30	8:30	0.014	0.060	121.00	19.00	57.00	3400	7600
	8:30	9:30	0.135	0.093	112.00	51.00	61.00	3700	11400
	9:30	10:30	0.144	0.089	129.00	46.00	64.00	3800	15300
	10:30	11:23	0.155	0.021	151.00	1.00	92.00	5000	20300

			Army Materials Technical Laboratory						
			Watertown, MA.						
			Stormwater Monitoring Program						
			Outfall 003						
Date	Period	Period	Maximum	Minimum	Maximum	Minimum	Average	Interval	Total
	Beginning	Ending	Depth	Depth	Flow Rate	Flow Rate	Flow Rate	Flow Volume	Flow Volume
			(feet)	(feet)	(gpm)	(gpm)	(gpm)	(gal)	
9-Dec-91	16:01	16:07	0.007	0.000	0.01	0.00	0.00	0	0
	16:20	17:20	0.004	-0.002	0.00	0.00	0.00	0	0
	17:20	18:20	0.002	-0.004	0.00	0.00	0.00	0	0
	18:20	19:20	0.005	-0.008	0.00	0.00	0.00	0	0
	19:20	20:20	0.001	-0.005	0.00	0.00	0.00	0	0
	20:20	21:20	0.001	-0.004	0.00	0.00	0.00	0	0
	21:20	22:20	0.006	-0.007	0.00	0.00	0.00	0	1
	22:20	23:20	0.005	-0.001	0.00	0.00	0.00	0	1
	23:20	0:20	0.005	-0.010	0.00	0.00	0.00	0	1
	0:20	1:20	0.006	-0.007	0.00	0.00	0.00	0	1
	1:20	2:20	0.006	-0.010	0.00	0.00	0.00	0	2
	2:20	3:20	0.005	-0.013	0.00	0.00	0.00	0	2
	3:20	4:20	0.005	-0.009	0.00	0.00	0.00	0	2
	4:20	5:20	0.006	-0.010	0.00	0.00	0.00	0	3
	5:20	6:20	0.006	-0.010	0.00	0.00	0.00	0	3
	6:20	7:20	0.005	-0.011	0.00	0.00	0.00	0	4
	7:20	8:20	0.006	-0.011	0.00	0.00	0.00	0	4
	8:20	9:20	0.006	-0.005	0.00	0.00	0.00	0	5
	9:20	10:20	0.010	0.001	0.10	0.00	1.00	0	7
	10:20	11:20	0.006	-0.004	0.00	0.00	0.00	0	8
	11:20	12:20	0.010	-0.005	0.10	0.00	0.00	0	9
	12:20	13:20	0.012	0.000	0.20	0.00	1.00	0	11
13-Dec-91	8:00	9:00	0.004	-0.005	0.00	0.00	0.00	0	0
	9:00	10:00	0.009	-0.010	0.00	0.00	0.00	0	0
	10:00	11:00	0.005	-0.005	0.00	0.00	0.00	0	0
	11:00	12:00	0.007	-0.011	0.00	0.00	0.00	0	0
	12:00	13:00	0.006	-0.005	0.00	0.00	0.00	0	1
	13:00	14:00	0.005	-0.009	0.00	0.00	0.00	0	1
	14:00	15:00	0.005	0.000	0.00	0.00	0.00	0	1
	15:00	16:00	0.005	-0.010	0.00	0.00	0.00	0	1
	16:00	17:00	0.004	-0.011	0.00	0.00	0.00	0	1
	17:00	18:00	0.005	-0.006	0.00	0.00	0.00	0	1
	18:00	19:00	0.005	-0.010	0.00	0.00	0.00	0	1
	19:00	20:00	0.005	-0.008	0.00	0.00	0.00	0	2
	20:00	21:00	0.004	-0.012	0.00	0.00	0.00	0	2
	21:00	22:00	0.004	-0.007	0.00	0.00	0.00	0	2
	22:00	23:00	0.005	-0.007	0.00	0.00	0.00	0	2
	23:00	0:00	0.005	-0.006	0.00	0.00	0.00	0	2

			Army Materials Technical Laboratory						
			Watertown, MA.						
			Stormwater Monitoring Program						
			Outfall 003						
14-Dec-91	0:00	1:00	0.005	-0.009	0.00	0.00	0.00	0	2
	1:00	2:00	0.005	-0.010	0.00	0.00	0.00	0	3
	2:00	3:00	0.006	-0.008	0.00	0.00	0.00	0	3
	3:00	4:00	0.003	-0.005	0.00	0.00	0.00	0	3
	4:00	5:00	0.005	-0.006	0.00	0.00	0.00	0	3
	5:00	6:00	0.004	-0.005	0.00	0.00	0.00	0	3
	6:00	7:00	0.004	-0.007	0.00	0.00	0.00	0	3
	7:00	8:00	0.077	-0.011	9.10	0.50	27.00	27	30
	8:00	9:00	0.093	0.029	13.40	1.10	5.80	357	388
	9:00	10:00	0.041	0.011	2.40	0.10	1.60	102	490
	10:00	11:00	0.094	0.013	13.70	0.20	5.50	353	844
	11:00	12:00	0.078	0.038	9.30	2.00	5.30	317	1161
	12:00	13:00	0.084	0.037	10.80	1.90	5.10	312	1473
	13:00	13:37	0.041	0.023	2.40	0.70	1.60	65	1538

			Army Materials Technical Laboratory						
			Watertown, MA.						
			Stormwater Monitoring Program						
			Outfall 004\5						
Date	Period	Period	Maximum	Minimum	Maximum	Minimum	Average	Interval	Total
	Beginning	Ending	Depth	Depth	Flow Rate	Flow Rate	Flow Rate	Flow Volume	Flow Volume
			(feet)	(feet)	(gpm)	(gpm)	(gpm)	(gal)	(gal)
8-Dec-91	13:00	14:00	0.008	0.004	0.00	0.00	0.00	0	0
	14:00	15:00	0.011	0.004	0.00	0.00	0.00	0	0
	15:00	16:00	0.013	0.004	1.00	0.00	0.00	0	0
	16:37	16:46	0.008	-0.006	0.00	0.00	0.00	0	0
9-Dec-91	17:00	18:00	0.010	0.005	0.00	0.00	0.00	0	0
	18:00	19:00	0.009	0.004	0.00	0.00	0.00	0	0
	19:00	20:00	0.011	0.004	0.00	0.00	0.00	0	0
	20:00	21:00	0.009	0.005	0.00	0.00	0.00	0	0
	21:00	22:00	0.012	0.007	0.00	0.00	0.00	0	0
	22:00	23:00	0.013	0.007	1.00	0.00	0.00	0	0
	23:00	0:00	0.010	0.007	0.00	0.00	0.00	0	0
10-Dec-91	0:00	1:00	0.012	0.006	0.00	0.00	0.00	0	0
	1:00	2:00	0.010	0.007	0.00	0.00	0.00	0	100
	2:00	3:00	0.011	0.008	0.00	0.00	0.00	0	100
	3:00	4:00	0.011	0.008	0.00	0.00	0.00	0	100
	4:00	5:00	0.028	0.009	7.00	0.00	0.00	0	200
	5:00	6:00	0.010	0.008	0.00	0.00	0.00	0	200
	6:00	7:00	0.011	0.008	0.00	0.00	0.00	0	200
	7:00	8:00	0.029	0.008	8.00	0.00	2.00	100	400
	8:00	9:00	0.013	0.008	1.00	0.00	0.00	0	500
	9:00	10:00	0.013	0.008	1.00	0.00	0.00	0	500
	10:00	11:00	0.012	0.008	0.00	0.00	0.00	0	500
	11:00	12:00	0.012	0.008	0.00	0.00	0.00	0	600
	12:00	13:00	0.013	0.006	1.00	0.00	0.00	0	600
	13:00	13:21	0.012	0.007	0.00	0.00	0.00	0	600
13-Dec-91	17:31	18:30	0.009	0.004	0.00	0.00	10.00	10	10
	18:30	19:30	0.013	0.007	0.00	0.00	0.00	10	20
	19:30	20:30	0.012	0.006	0.00	0.00	0.00	10	30
	20:30	21:30	0.013	0.006	0.00	0.00	0.00	10	40
	21:30	22:30	0.011	0.006	0.00	0.00	0.00	10	50
	22:30	23:30	0.012	0.006	0.00	0.00	0.00	10	60
	23:30	0:30	0.014	0.006	0.00	0.00	0.00	0	70
14-Dec-91	0:30	1:30	0.013	0.006	0.00	0.00	0.00	10	80
	1:30	2:30	0.013	0.006	0.00	0.00	0.00	10	100
	2:30	3:30	0.011	0.005	0.00	0.00	0.00	0	100
	3:30	4:30	0.011	0.006	0.00	0.00	0.00	10	110
	4:30	5:30	0.013	0.007	0.00	0.00	0.00	10	130
	5:30	6:30	0.012	0.006	0.00	0.00	0.00	10	140
	6:30	7:30	0.027	0.008	4.00	0.00	2.00	170	320
	7:30	8:30	0.062	0.006	24.00	0.00	8.00	500	820
	8:30	9:30	0.074	0.057	36.00	21.00	24.00	1490	2320
	9:30	10:30	0.068	0.042	30.00	10.00	21.00	1340	3600
	10:30	11:30	0.073	0.040	36.00	10.00	21.00	1330	5000
	11:30	12:30	0.073	0.037	35.00	8.00	23.00	1430	6430
	12:30	13:30	0.070	0.056	32.00	20.00	24.00	1520	7950
	13:30	14:20	0.064	0.056	26.00	20.00	21.00	1130	9080

Army Materials Technical Laboratory									
Watertown, MA.									
Stormwater Monitoring Program									
Outfall 007									
Date	Period	Period	Maximum	Minimum	Maximum	Minimum	Average	Interval	Total
	Beginning	Ending	Depth	Depth	Flow Rate	Flow Rate	Flow Rate	Flow Volume	Flow Volume
			(feet)	(feet)	(gpm)	(gpm)	(gpm)	(gpm)	(gal)
8-Dec-91	11:30	12:28	0.147	0.114	57.6	34.0	56.8	2760	3550
	13:05	13:30	0.128	0.099	43.8	25.8	30.9	470	4810
	13:30	13:45	0.128	0.099	43.8	25.8	30.9	470	4810
	15:06	15:30	0.113	0.096	33.3	24.2	30.0	710	5520
	15:30	16:16	0.118	0.082	36.7	17.3	23.7	1090	6620
9-Dec-91	15:21	15:30	0.088	0.071	20.1	12.6	17.0	150	6770
	15:30	15:33	0.092	0.086	21.6	18.8	19.5	60	0
	15:43	16:43	0.089	0.082	20.2	17.3	19.5	1140	1160
	16:43	17:43	0.090	0.081	21.0	16.6	18.3	1100	2270
	17:43	18:43	0.101	0.081	26.6	16.9	18.7	1130	3400
	18:43	19:43	0.100	0.084	26.3	18.2	18.8	1130	4540
	19:43	20:43	0.101	0.081	26.6	16.8	18.1	1090	5630
	20:43	21:43	0.098	0.083	24.9	17.6	18.9	1140	6780
	21:43	22:43	0.098	0.086	24.9	18.8	19.0	1140	7930
	22:43	23:43	0.099	0.085	25.4	18.4	19.0	1150	9080
10-Dec-91	23:43	0:43	0.097	0.085	24.5	18.4	18.9	1140	10220
	0:43	1:43	0.097	0.085	24.5	18.7	19.1	1150	11380
	1:43	2:43	0.096	0.083	23.8	17.6	19.1	1150	12540
	2:43	3:43	0.099	0.085	25.8	18.7	19.5	1180	13720
	3:43	4:43	0.097	0.086	24.5	19.0	19.4	1170	14890
	4:43	5:43	0.097	0.087	24.7	19.3	19.5	1180	16080
	5:43	6:43	0.097	0.085	24.7	18.4	19.5	1180	17260
	6:43	7:43	0.097	0.084	24.5	18.2	19.8	1190	18450
	7:43	8:43	0.099	0.087	25.6	19.4	20.3	1220	19680
	8:43	9:43	0.100	0.086	25.9	19.0	21.6	1300	20980
	9:43	10:43	0.096	0.086	24.2	19.0	19.4	1170	22150
	10:43	11:43	0.097	0.083	24.7	17.6	19.2	1160	23310
	11:43	12:43	0.098	0.084	24.9	17.9	19.1	1150	24470
	12:43	13:10	0.098	0.085	25.0	18.4	19.6	540	25020
12-Dec-91	16:17	16:30	0.090	0.074	20.8	13.8	17.1	230	25250
13-Dec-91	17:30	18:30	0.087	0.083	13.7	12.5	12.8	800	1050
	18:30	19:30	0.103	0.085	19.5	13.0	13.4	810	1860
	19:30	20:30	0.104	0.085	19.9	13.0	13.3	800	2670
	20:30	21:30	0.102	0.084	19.2	12.7	13.3	800	3480
	21:30	22:30	0.102	0.085	19.1	13.0	13.3	800	4290
	22:30	23:30	0.102	0.085	19.1	13.0	13.2	800	5090

Army Materials Technical Laboratory									
Watertown, MA.									
Stormwater Monitoring Program									
Outfall 007									
14-Dec-91	23:30	0:30	0.102	0.085	19.3	13.0	13.3	800	5900
	0:30	1:30	0.102	0.085	19.1	13.0	13.3	800	6700
	1:30	2:30	0.101	0.085	18.8	13.0	13.3	800	7510
	2:30	3:30	0.101	0.085	19.0	13.0	13.2	790	8310
	3:30	4:30	0.100	0.085	18.5	13.2	13.3	810	9120
	4:30	5:30	0.101	0.086	19.0	13.3	13.5	810	9940
	5:30	6:30	0.101	0.085	18.8	13.2	13.4	810	10750
	6:30	7:30	0.102	0.085	19.2	13.0	13.3	800	11550
	7:30	8:30	0.144	0.085	39.1	13.2	14.4	860	12420
	8:30	9:30							
	9:30	10:30	0.367	0.296	242.7	162.9	197.7	11840	31280
	10:30	11:30	0.373	0.351	249.7	223.7	234.2	14070	45350
	11:30	12:30	0.378	0.351	254.8	224.1	236.5	14210	59560
	12:30	13:17	0.378	0.329	254.9	198.9	217.8	10390	69960

APPENDIX H.2
CLEANING AND INSPECTION LOGS
SANITARY AND STORM SEWERS

EASTERN PIPE SERVICE, INC.

DAILY FIELD REPORT

CLIENT Rof Weston Inc. DATE 5-27 19 92
 PROJECT LOCATION Watertown MA: A.M.T.L.

EMPLOYEE ACTIVITIES AND MATERIALS

Chemicals Mixed	Unit No.
AV-100 _____ Q or G-9 _____ Lbs. Cat-T _____ Lbs. AP _____ Lbs. Other _____	Clean <u>C-2</u> Seal _____ T.V. <u>TUV</u> Other _____

HOURLY ACTIVITIES

Project Start Time: <u>5³⁰ AM</u>	Lunch Time Stop: _____ Start: _____	End of Workday Stop Time: <u>4³⁰ PM</u>	Detail In Notes			
Employees Name	Total Hours	Clean	T.V.	Test Seal	Travel	Other
SUPT. <u>R. Beethiane</u>	<u>9.1</u>	<u>5</u>	<u>4.5</u>		<u>1.5</u>	
<u>Roger Masan Jr</u>	<u>1.1</u>	<u>5</u>	<u>4.5</u>		<u>1.5</u>	

NOTES 5³⁰ - 6^{AM} - P.I.T. - Load TUV + C-2 w/ safety Gear - Concess ect...

Mobilize to Watertown MA: A.M.T.L. Arsenal / 7³⁰ Check in

Get Visitor Pass - Arrange Hydrant use - Meet "Roy Weston" inspectors
Safety briefing clear
FROM LARRY TU No Beacon SMH 120-001-116-114 73+74 + dis cover
5" Pipe + dis section
TUV.

UNIT CHARGES	Fill HOURLY CHARGES Store C-2 AT A.M.T.L.
Clean <u>1053</u> L.F. <u>5'-10'-12"</u> T.V. <u>845</u> L.F. <u>10'+12"</u> Test _____ Each _____ Seal _____ Each _____ Other _____	Standard Hours _____ Standby Hours _____ Chemical Used Lbs. _____ Other Material Used _____

R. Beethiane
 Supervisor Signature

Lourence West III
 Client Representative Signature

EASTERN PIPE SERVICE, INC.

DAILY FIELD REPORT

CLIENT Roy Weston Inc. DATE 5-28 1992
 PROJECT LOCATION Water town Ma. A.M.T.L

EMPLOYEE ACTIVITIES AND MATERIALS

3M Grouting Compound				Unit No.	
Type 5610 _____ ozs.	Type 5612 _____	Clean <u>C2</u>	Seal _____		
Type 5611 _____ ozs.	Other _____	T.V. <u>TU1</u>	Other <u>PT6</u>		

HOURLY ACTIVITIES

Project Start Time: <u>7 AM.</u>	Lunch Time Stop: _____	Start: _____	End of Workday Stop Time: <u>5³⁰ AM</u>	Detail In Notes		
Employees Name	Total Hours	Clean	T.V.	Test Seal	Travel	Other
SUPT. <u>R. Bethune</u>	<u>10.5</u>	<u>5.5</u>	<u>5</u>			
<u>Roger Dagon</u>	<u>10.5</u>	<u>5.5</u>	<u>5</u>			

NOTES 6-7 AM - Bring down PT6 with Long Ladder - Barrels + air test gear - Meet M.D.C. Traffic Detail (late!) TU No Barrels
SRH14-702-112-67-66-39 - 15" VC Sewer
Heavy Chewing - Dump Dirt in 50 Gal br Drum on site.

UNIT CHARGES				HOURLY CHARGES	
Heavy Clean <u>1297</u>	L.F.	Size <u>15"</u>		Standard Hours	_____
T.V. <u>1297</u>	L.F.	<u>15"</u>		Standby Hours	_____
Test _____	Each	_____		Grout Used Ozs.	_____
Seal _____	Each	_____		Other Material Used	_____
Other _____					

R. Bethune
 Supervisor Signature

Lawrence West III
 Client Representative Signature

EASTERN PIPE SERVICE, INC.

DAILY FIELD REPORT

CLIENT Roy Weston Inc. DATE 5-29 19 92
 PROJECT LOCATION Watertown Ma Art 1

EMPLOYEE ACTIVITIES AND MATERIALS

3M Grouting Compound				Unit No.	
Type 5610 _____ ozs.	Type 5612 _____	Clean <u>C-2</u>	Seal _____		
Type 5611 _____ ozs.	Other _____	T.V. <u>TU</u>	Other <u>PTG</u>		

HOURLY ACTIVITIES

Project Start Time: <u>7 AM.</u>	Lunch Time Stop: _____ Start: _____			End of Workday Stop Time: <u>3:07 PM</u>	Detail In Notes	
Employees Name	Total Hours	Clean	T.V.	Test Seal	Travel	Other
SUPT. <u>R. Beethian</u>	<u>8 1/2</u>	<u>4 1/2</u>	<u>4</u>			
<u>Roger Masow</u>	<u>8 1/2</u>	<u>4 1/2</u>	<u>4</u>			

NOTES Watertown Police Detail - Arsenal ST SH 91-93-94
18" UC Clean + TV - Drum Debris which seems "Hot"
P.M. Clean Lower 15" 39 → 36 TV, 39 → 33
- 33 To 36 Remains Constantly Surcharged - Suspect Sag in line.

UNIT CHARGES				HOURLY CHARGES	
Clean <u>848</u>	L.F.	Size <u>10 + 15</u>		Standard Hours	_____
T.V. <u>848</u>	L.F.	<u>10 + 15</u>		Standby Hours	_____
Test _____	Each	_____		Grout Used Ozs.	_____
Seal _____	Each	_____		Other Material Used	_____
Other _____					

R. Beethian
 Supervisor Signature

Lawrence Weston
 Client Representative Signature

EASTERN PIPE SERVICE, INC.

DAILY FIELD REPORT

CLIENT Ray Weston Inc. DATE 6-1 19 92
 PROJECT LOCATION Watertown MA A.M.T.L

EMPLOYEE ACTIVITIES AND MATERIALS

3M Grouting Compound				Unit No.	
Type 5610 _____ ozs.	Type 5612 _____	Clean <u>C-2</u>	Seal _____		
Type 5611 _____ ozs.	Other _____	T.V. <u>TU1</u>	Other <u>P16</u>		

HOURLY ACTIVITIES

Project Start Time: <u>7 AM</u>	Lunch Time Stop: _____ Start: _____		End of Workday Stop Time: <u>5 PM</u>		Detail In Notes	
Employees Name	Total Hours	Clean	T.V.	Test Seal	Travel	Other
SUPT. <u>R. Beathiaume</u>	<u>10</u>	<u>4</u>	<u>6</u>			
<u>Roger Dason</u>	<u>10</u>	<u>4</u>	<u>6</u>			

NOTES Pickup 2 Dot spec. Steel Barrels for Hazardous Waste (dirt)
Storage - Somerville MA - Float string thru drain lines
TU 15" - 24" Drain "B" to Property Line - TU 28" x 24" Elliptical
Brick Pipe Drain Line "C" - No TU AT Bldg 312 Drain is not AS shown on plans

UNIT CHARGES				HOURLY CHARGES	
Clean <u>297</u>	L.F.	Size <u>24"</u>		Standard Hours <u>10</u>	
T.V. <u>694</u>	L.F.	<u>15' x 24"</u>		Standby Hours _____	
Test _____	Each	_____		Grout Used Ozs. _____	
Seal _____	Each	_____		Other Material Used _____	
Other _____					

R. Beathiaume
 Supervisor Signature

Lawrence J. Weston III
 Client Representative Signature

EASTERN PIPE SERVICE, INC.

DAILY FIELD REPORT

CLIENT Roy Weston Assoc. DATE 6-2 1992
 PROJECT LOCATION Watertown MA. A.D.T.L.

EMPLOYEE ACTIVITIES AND MATERIALS

3M Grouting Compound		Unit No.	
Type 5610 _____ ozs.	Type 5612 _____	Clean <u>C-2</u>	Seal _____
Type 5611 _____ ozs.	Other _____	T.V. <u>TU1</u>	Other <u>PTG</u>

HOURLY ACTIVITIES

Project Start Time: <u>7AM</u>	Lunch Time Stop: _____		End of Workday Stop Time: <u>2PM</u>		Detail In Notes	
Employees Name	Total Hours	Clean	T.V.	Test Seal	Travel	Other
Supt. <u>R. Bethune</u>	7		7			
<u>Roger Mason</u>	7		7			

NOTES String Drain Line A - under Bldg 311 To No Beacon St
TV 30" + 24" Drain DN H 7-8-8A-9-9A-9B + outfall to River 10
PM. Attempt to locate line - Drain "C" - Found outfall -
Suspect Buried Drop DH not on Plans - Could not TV outfall

UNIT CHARGES		Other Sewer Measure 5" diameter - HOURLY CHARGES cannot TV.	
Clean _____	L.F. _____	Standard Hours _____	
T.V. <u>778</u>	L.F. <u>30" + 24"</u>	Standby Hours _____	
Test _____	Each _____	Grout Used Ozs. _____	
Seal _____	Each _____	Other Material Used _____	
Other _____		<u>Left Videotape #2</u> <u>with</u>	

R. Bethune
 Supervisor Signature

Lawrence J. Wertz III
 Client Representative Signature

SUPT. RGBerthlaume

INSPECTOR.

[illegible]

EASTMAN KODAK COMPANY

DATE 5 / 28 / 92

SUPT. RGBerthlaume

CLIENT Roy F. Weston Inc. - Watertown, Mass.

INSPECTOR_

[illegible]

DATE 5 / 29 / 92

CLIENT Roy F. Weston Inc. - Watertown, Mass.

[illegible]

DATE 6 / 1 / 92

SUPT. R. Berthiaume

CLIENT Roy F. Weston Inc. - Watertown, Mass.

INSPECTOR
Lawrence Warts

H-19

DAILY CLEANING REPORT

SUPT. R. Berthiaume.

INSPECTOR

H-20

EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-27-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL. No. Beacon St. FROM MANHOLE 120 TO MANHOLE 01
 TYPE OF PIPE VC TYPE OF JOINTS 2' & 3' LINE & GRADE Fair CLEANLINESS Good-flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr MH 120			31				
2	2	Begin 10" VC pipe			32				
3	7	J with mortar	5		33				
4	8	SC Cut in	12		34				
5	24	SC	11		35				
6	30	J Flat grade	6		36				
7	34	J End flat grade	6		37				
8	35	SC Cut in	11		38				
9	38	SC Cut in Runs	1		39				
10	45	SC Wye	12		40				
11	61	SC Wye	12		41				
12	75	SC Wye Stub	11		42				
13	84	SC Cut in	12		43				
14	90	SC Cut in	12		44				
15	92	SC Wye Stub	12		45				
16	115	SC Wye Stub	11		46				
17	131	PSC Cut in 1"	1		47				
18	135	SC Wye Stub	11		48				
19	140	SC Cut in Runs	9		49				
20	160	SC Wye Stub	11		50				
21	188	SC Cut in	11		51				
22	231	SC Cut in	12		52				
23	300	Begin dip 1"			53				
24	310	OSJ Dip 2"			54				
25	313	OSJ Dip 1"			55				
26	315	End 10" VC pipe			56				
27	317	Ctr MH 01			57				
28					58				
29					59				
30					60				

SPECIAL NOTES _____

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 000

STOP TIME: 944

SECTION LENGTH 317' LINE SIZE 10" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-27-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL Kingsbury Ave. FROM MANHOLE 73 TO MANHOLE 74
 TYPE OF PIPE VC TYPE OF JOINTS _____ LINE & GRADE _____ CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF	PHOTO NO.
1	0	Ctr MH 73			31				
2	2	Begin 5" VC pipe			32				
3		Camera cannot fit into			33				
4		5" VC pipe			34				
5					35				
6					36				
7					37				
8					38				
9					39				
10					40				
11					41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES Between Bldg. #312 & 36

Plan says 8" pipe - Pipe actually measures
5" VC. Could not fit camera into 5" VC pipe

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 944

STOP TIME: 1050

SECTION LENGTH 208' taped LINE SIZE 5" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-27-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME PM
 SECTION ON AMTL No. Beacon St. FROM MANHOLE 01 TO MANHOLE 116
 TYPE OF PIPE VC TYPE OF JOINTS 2' mortar LINE & GRADE Fair CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr MH 01			31				
2	2	Begin 12" VC pipe			32				
3	77	SC Wye Stub	11		33				
4	162	Dip 1"			34				
5	166	End dip			35				
6	240	CJ	6		36				
7	282	CJ	7-5		37				
8	330	End 12" VC			38				
9	332	Ctr MH 116			39				
10					40				
11					41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES _____

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

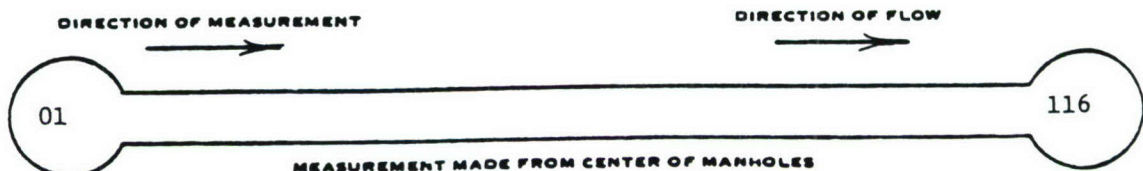
STOP TIME: _____

VHS: SP LP EP #1

START TIME: 1049

STOP TIME: 1620

SECTION LENGTH 332 LINE SIZE 12" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-27-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME PM
 SECTION ON AMTL No. Beacon St. FROM MANHOLE 116 TO MANHOLE 114
 TYPE OF PIPE VC TYPE OF JOINTS 2' mortar LINE & GRADE _____ CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr MH 116			31				
2	2	Begin 12" VC pipe			32				
3	3	SC Stub	12		33				
4	129	SC Cut in (8" VC?)	9		34				
5	194	End 12" VC pipe			35				
6	196	Ctr MH 114			36				
7					37				
8					38				
9					39				
10					40				
11					41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES _____

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 1620

STOP TIME: 1923

SECTION LENGTH 196 LINE SIZE 12" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-28-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL No. Beacon St. FROM MANHOLE 114 TO MANHOLE 002
 TYPE OF PIPE VC TYPE OF JOINTS 3' mortar LINE & GRADE Fair CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr MH 114			31				
2	2	Begin 15" VC pipe			32				
3	69	OSJ			33				
4	111	Chip in crown	12		34				
5	184	CJ BJ	7-4		35				
6	250	Dip 2"			36				
7	255	CJ BJ Dip 2"	8-6-3		37				
8	258	CJ BJ Dip 1"	7-6-4		38				
9	264	End 15" VC pipe			39				
10		End dip			40				
11	266	Ctr MH 02			41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 1923

STOP TIME: 2417

SECTION LENGTH 266' LINE SIZE 15" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-28-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON No. Beacon St. FROM MANHOLE 002 TO MANHOLE 112
 TYPE OF PIPE VC TYPE OF JOINTS 3' mortar LINE & GRADE Poor-flat CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr MH 002			31				
2	2	Begin 15" VC pipe			32				
3	6	CJ	6-4		33				
4	31	SC Cut in	9-11		34				
5	31	or possible hole patched			35				
6	54	J Dip 2"			36				
7	58	CJ Dip 2"	7		37				
8	73	J Dip 3" flat grade			38				
9	82	J Dip 3" "			39				
10	92	J Dip 4" W, 4"			40				
11	* 100	J Dip 5" - camera			41				
12	{ 105	under water			42				
13	{ 110	Dip 6" Camera under water			43				
14	{ 120	Dip 6" "			44				
15	{ 130	Dip 6" "			45				
16	{ 140	Dip 6" "			46				
17	{ 150	End 15" VC pipe			47				
18	* 152	Ctr MH 112			48				
19		Dip 6" holds 6" of water			49				
20		which does not drain			50				
21		down.			51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES MH 002 contains 6" VC pipe and flow from MH 78.

*Pipe downstream of MH 112 is surcharged to 1/2 pipe full of water due to dip downstream causing water to hold in flat grade from 100' to 152'

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 2417

STOP TIME: 2684

SECTION LENGTH 152' LINE SIZE 15" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-28-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME PM
 SECTION ON AMTL No. Beacon St. FROM MANHOLE 112 TO MANHOLE 67
 TYPE OF PIPE VC TYPE OF JOINTS 3' 2' mortar LINE & GRADE Poor-flat grade CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr MH 112			31	300	Ctr MH 67		
2	2	Begin 15" VC pipe			32				
3	3	Dip 4" W.4"			33				
4	12	Dip 5" W.5"			34				
5	22	Dip 6" W.6"			35				
6	29	Dip 5" W.5"			36				
7	40	Dip 5" W.5"			37				
8	50	Dip 4" W.4"			38				
9	60	Dip 3" W.3"			39				
10	68	Dip 2"			40				
11	72	J R.3 Dip 1"	2		41				
12	80	Dip 2"			42				
13	95	Dip 2"			43				
14	102	Dip 2"			44				
15	110	Dip 2"			45				
16	120	Dip 2"			46				
17	130	Dip 1" Flat grade			47				
18	154	SC Cut in	9		48				
19	160	Dip ends			49				
20	168	J R.3	8-4		50				
21	237	J R.1	12		51				
22	239	CPL	12		52				
23	241	CPL	12		53				
24	243	CPL	10-12-2		54				
25	245	CPL	12		55				
26	248	End CPL	12		56				
27	267	J R.1	2		57				
28	282	J R.2	8-4		58				
29	290	Flat grade to MH			59				
30	290	End 15" VC pipe			60				

SPECIAL NOTES Dip in line from MH 02 and downstream 100' - Hold water continuously.

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 2684

STOP TIME: 3110

SECTION LENGTH 300' LINE SIZE 15" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-28-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME PM
 SECTION ON AMTL Easement-No. Beacon St. FROM MANHOLE 67 TO MANHOLE 66
 TYPE OF PIPE VC TYPE OF JOINTS 3' Mortar LINE & GRADE Fair CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr MH 67			31	279	End 15" VC pipe		
2	2	Begin 15" VC pipe			32	281	Ctr MH 66		
3	2	Roots visible	8-4		33				
4	44	J R,1	9		34				
5	62	J R,1	9		35				
6	70	J R,2	9-3		36				
7	97	J R,1	12		37				
8	102	J R,3	9-12-2		38				
9	131	J R,1	10		39				
10	160	Flat grade			40				
11	170	Dip 2"			41				
12	180	Dip 2"			42				
13	190	Dip 2"			43				
14	210	Dip 2"			44				
15	220	Dip 2"			45				
16	226	CJ R,2 CPL	9-12		46				
17	229	CPL R,2	9-12		47				
18	231	CPL Dip 2"	2		48				
19	233	CPL	8-12		49				
20	235	BJ CPL	8-12-1		50				
21	238	CPL CRP R	8-12-4		51				
22	241	CJ CPL R	12		52				
23	244	CJ CPL R	12		53				
24	248	End CPL R,3	8-3		54				
25	261	CPL starts	12		55				
26	264	CPL	1		56				
27	267	CJ CPL	3		57				
28	270	CPL CJ	8-12		58				
29	273	CPL	12		59				
30	275	End dip End CPL			60				

SPECIAL NOTES _____

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 3110

STOP TIME: 3534

SECTION LENGTH 281 LINE SIZE 15" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy Weston Inc. INSPECTOR Fred Eddinger DATE 5-28-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME PM
 SECTION ON AMTL Easement - No. Beacon St. FROM MANHOLE 39 TO MANHOLE 66
 TYPE OF PIPE VC TYPE OF JOINTS 2' 3' LINE & GRADE Poor-flat grade CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Chr MH 39			31				
2	2	Begin 15" VC pipe			32				
3	24	J R,1	9		33				
4	89	J R,1	10		34				
5	110	Flat grade			35				
6	130	"			36				
7	150	"			37				
8	170	"			38				
9	180	Dip 3"			39				
10	190	Dip 3"			40				
11	194	Dip 3"			41				
12	200	Dip 2"			42				
13	210	Flat grade			43				
14	235	"			44				
15	260	End flat grade			45				
16	279	J R,9	9		46				
17	296	End 15" VC pipe			47				
18	298	Chr MH 66			48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES _____

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

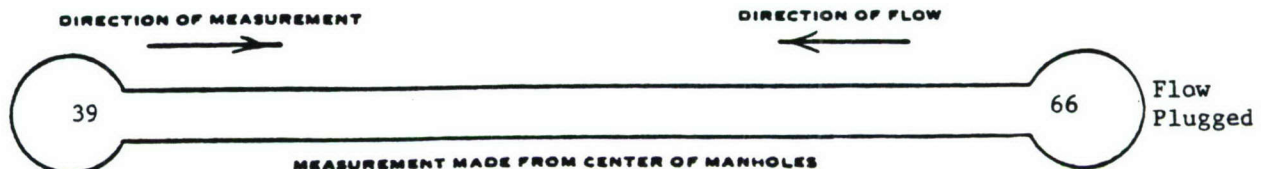
STOP TIME: _____

VHS: SP LP EP #1

START TIME: 3534

STOP TIME: 3865

SECTION LENGTH 298 LINE SIZE 15" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-29-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL Arsenal St. FROM MANHOLE 91 TO MANHOLE 93
 TYPE OF PIPE VC TYPE OF JOINTS 2' mortar LINE & GRADE Fair CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr MH 91			31				
2	2	Begin 10" VC pipe			32				
3	9	SC Wye Stub?	12		33				
4	28	CJ BJ			34				
5	29	SC Cut in BP	12		35				
6	31	CJ End CP	12		36				
7	33	SC Wye Stub	12		37				
8	187	PSC Cut in 1"	12		38				
9	187	Runs - heavy	12		39				
10	230	J 1" mortar visible	8-6		40				
11	236	J 1" mortar visible	8-6		41				
12	246	J 1" mortar visible	6-4		42				
13	290	Flat grade			43				
14	303	Flat grade			44				
15	305	Ctr MH 93			45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES _____

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 3865

STOP TIME: 4335

SECTION LENGTH 305' LINE SIZE 10" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Inc. INSPECTOR Fred Eddinger DATE 5-29-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL Arsenal St. FROM MANHOLE 93 TO MANHOLE 94
 TYPE OF PIPE VC TYPE OF JOINTS 2' LINE & GRADE Fair CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctrl MH 93			31	283	CPL	12	
2	2	Begin 10" VC pipe			32	300	OSJ Dip down 2"		
3	3	Flat grade			33	303	End 10" VC pipe Dip 4"		
4	5	CPL	12		34	305	Ctrl MH 94		
5	22	J 1" mortar visible	6		35				
6	32	CJ			36				
7	33	SC Chimney BP	12		37				
8	34	CPL CRP	9-12-3		38				
9	38	End CPL CRP	9-12-3		39				
10	44	CJ CPL	8-12		40				
11	45	SC Cut in BP	12		41				
12	46	CPL	10-2		42				
13	48	CJ End CPL	10-8		43				
14	82	SC Wye Stub	11		44				
15	83	SC Cut in Runs	12		45				
16	83	Runs constantly			46				
17	120	SC Wye Stub	11		47				
18	172	SC Wye Stub	11		48				
19	177	SC Cut in	12		49				
20	177.5	SC Cut in	10		50				
21	184	CJ CPL	12		51				
22	185	SC Cut in CPL	12		52				
23	187	CJ End CPL	12		53				
24	222	SC Wye Stub	9		54				
25	229	SC Wye Stub	12		55				
26	230	CPL	11		56				
27	232	CPL	12		57				
28	234	End CPL	12		58				
29	242	SC Wye Stub	12		59				
30	272	SC Wye Stub	9		60				

SPECIAL NOTES

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 4335

STOP TIME: 4846

SECTION LENGTH 305' LINE SIZE 10" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy Weston Inc. INSPECTOR Fred Eddinger DATE 5-29-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME PM
 SECTION ON AMTL Easement FROM MANHOLE 39 TO MANHOLE 53
 TYPE OF PIPE VC TYPE OF JOINTS 3' mortar LINE & GRADE Fair CLEANLINESS Flushed

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr MH 39			31				
2	2	Begin 15" VC pipe			32				
3	90	Evidence of grease	10-2		33				
4	93	CJ CPC	12-10		34				
5	96	Begin dip			35				
6	99	Dip 2"			36				
7	112	Dip 4"			37				
8	116	Grease on walls	11-1		38				
9	121	"	12		39				
10	128	Dip 8"	12		40				
11	130	Dip 10"			41				
12	136	End 15" VC pipe			42				
13	138	Ctr MH 53			43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES Could not televise from MH 53 to 36 = 50' length - Line remains continuously surcharged due to blockage. Suspect blockage or poor grade downstream over 400'. We did run flusher hose down 400' without results.

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #1

START TIME: 4746

STOP TIME: _____

SECTION LENGTH 138' LINE SIZE 15" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Corp. INSPECTOR L. Warts III DATE 6-1-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL Drain B Bldg. 36 FROM MANHOLE 1 TO MANHOLE CB 2
 TYPE OF PIPE VC TYPE OF JOINTS 2' LINE & GRADE Fair CLEANLINESS Good

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctrl DMH 1			31				
2	2	Begin 15" VC pipe			32				
3	35	SC Cut in 8"	10		33				
4	59	CP	9		34				
5	60	PSC Cut in 3"	9		35				
6	86	SC 8" VC	2		36				
7	100	Flat grade			37				
8	108	End 15" VC pipe			38				
9	110	Ctrl CB 2			39				
10					40				
11					41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES Drain Line B

VIDEO TAPE

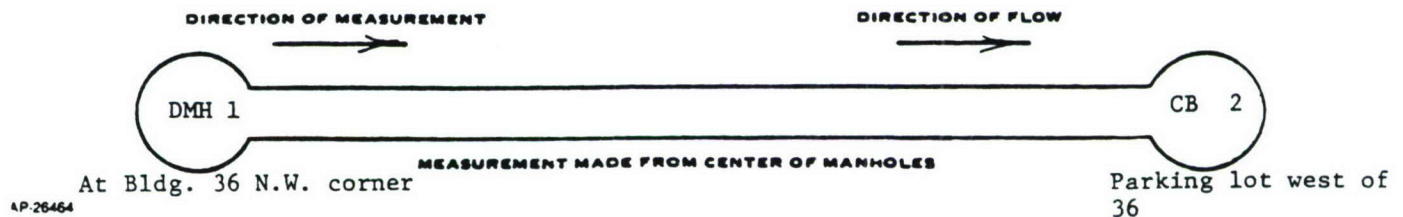
BETA: B-1 B-2 B-3

START TIME: _____
 STOP TIME: _____

VHS: SP LP EP #2

START TIME: 000
 STOP TIME: 446

SECTION LENGTH 110' LINE SIZE 15" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Corp. INSPECTOR L. Warts III DATE 6-1-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL Drain B Bldg. 36 FROM MANHOLE CB 2 TO MANHOLE DMH 3
 TYPE OF PIPE VC TYPE OF JOINTS 2' LINE & GRADE Fair CLEANLINESS Fair

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr CB 2			31				
2	2	Begin 24" VC pipe			32				
3	25	CPL Hairline	11		33				
4	30	CPL ends	12		34				
5	42	SC	4		35				
6	60	PSC Cut in 4"	10		36				
7	62	BP Piece missing	12		37				
8	62	Possible service tap	12		38				
9	93	PSC Cut in 5"	11		39				
10	97	CPL Hairline	12		40				
11	104	CPL "	12		41				
12	109	CPL "	12		42				
13	114	SC 6" VC Cut in	12		43				
14	116	CPL	5		44				
15	129	SC Cut in	10		45				
16	148	SC Cut in 12" pipe	10		46				
17	185	End 24" VC pipe			47				
18	187	Ctr DMH 3			48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES _____

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #2

START TIME: 446

STOP TIME: 1056

SECTION LENGTH 187 LINE SIZE 24" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Corp. INSPECTOR L. Warts III DATE 6-1-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME PM
 SECTION ON AMTL Drain Line C FROM MANHOLE 4 TO MANHOLE 5
 TYPE OF PIPE Brick TYPE OF JOINTS Mortar LINE & GRADE Fair CLEANLINESS Fair
Elliptical

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr DMH 4			31				
2	1	Begin 8" x 24" brick pipe			32				
3	122	Ctr DMH 5			33				
4					34				
5					35				
6					36				
7					37				
8					38				
9					39				
10					40				
11					41				
12					42				
13					43				
14					44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES 18" x 24" elliptical brick drain line C.

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

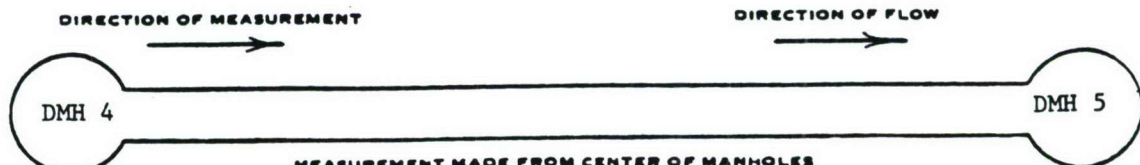
STOP TIME: _____

VHS: SP LP EP #2

START TIME: 1056

STOP TIME: 1325

SECTION LENGTH 122' LINE SIZE 18" x 24" MANHOLE CONDITIONS Brick



South of Bldg. 312

AP-26464

EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Corp. INSPECTOR L. Warts III DATE 6-1-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME PM
 SECTION ON AMTL Drain line C FROM MANHOLE 5 TO MANHOLE 6
 TYPE OF PIPE Elliptical TYPE OF JOINTS Mortar LINE & GRADE Fair CLEANLINESS Fair
brick

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr DMH 5			31				
2	1	18" x 24" elliptical brick pipe			32				
3	49	SC 18" VC Cut in 3"	9		33				
4	74	SC Cut in 4"	11		34				
5	158	SC Cut in	2		35				
6	170	Begin sweep right			36				
7	178	Arc right			37				
8	188	End bend right			38				
9	240	Roots	3		39				
10	270	End brick pipe			40				
11	271	Mortar repair			41				
12	271	to 18" VC pipe			42				
13	273	End 18" VC pipe			43				
14	275	Ctr DMH 6			44				
15					45				
16					46				
17					47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES 18" x 24" elliptical brick pipe

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

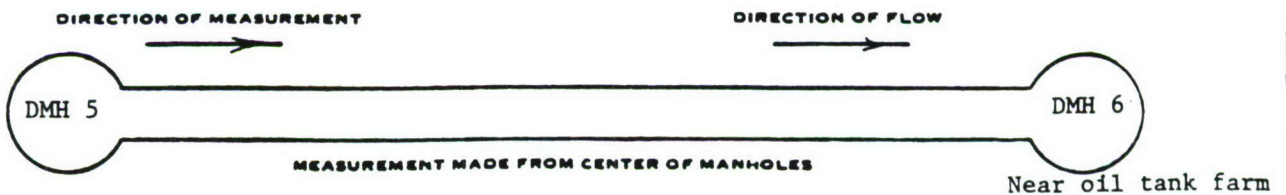
STOP TIME: _____

VHS: SP LP EP #2

START TIME: 1325

STOP TIME: 1865

SECTION LENGTH 275' LINE SIZE 18" x 24" MANHOLE CONDITIONS Brick



EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Corp. INSPECTOR L. Warts III DATE 6-2-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL Bldg. 311 Drain line FROM MANHOLE 7 TO MANHOLE 8
 TYPE OF PIPE Iron TYPE OF JOINTS 12' LINE & GRADE Good CLEANLINESS Good

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr DMH 7			31				
2	2	Begin 30" iron pipe			32				
3	6	J			33				
4	18	J			34				
5	30	J			35				
6	42	J			36				
7	54	J			37				
8	66	J			38				
9	78	J			39				
10	90	J			40				
11	102	J			41				
12	115	J			42				
13	127	J			43				
14	140	J			44				
15	152	J			45				
16	164	J			46				
17	176	J			47				
18	188	J			48				
19	200	J			49				
20	213	End 30" iron pipe			50				
21	215	Ctr DMH 8			51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES Drain line A

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #2

START TIME: 1865

STOP TIME: 2226

SECTION LENGTH 215' LINE SIZE 30" MANHOLE CONDITIONS Brick



AP-26464

EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Corp. INSPECTOR L. Warts III DATE 6-2-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL. Drain line A Thompson St. FROM MANHOLE 8 TO MANHOLE 9
 TYPE OF PIPE Iron to VC TYPE OF JOINTS 2' Bldg. 292 LINE & GRADE Good CLEANLINESS Good

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	0	Ctr DMH 8			31				
2	2	Begin 24" iron pipe			32				
3	14	J			33				
4	26	J			34				
5	40	End 24" iron pipe			35				
6	42	Ctr DMH 8A			36				
7	44	Begin 24" VC pipe			37				
8	46	CJ	5		38				
9	54	SC Cut in	9		39				
10	100	SC Cut in 4"	1		40				
11	210	SC Cut in	11		41				
12	239	SC Cut in	10		42				
13	289	SC Cut in	10		43				
14	296	SC Cut in 4"	11		44				
15	312	SC Wye	10		45				
16	342	End 24" VC pipe			46				
17	344	Ctr DMH 9			47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES Drain line A - west of Bldg. 292

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

STOP TIME: _____

VHS: SP LP EP #2

START TIME: 2226

STOP TIME: 2815

SECTION LENGTH 344' LINE SIZE 24" MANHOLE CONDITIONS Brick



At No. Beacon St.

EASTERN PIPE SERVICE, INC.

TELEVISION INSPECTION LOG

CLIENT Roy F. Weston Corp. INSPECTOR L. Warts III DATE 6-2-92
 PROJECT LOCATION Watertown, Mass. CREW CHIEF RGBerthiaume TIME AM
 SECTION ON AMTL Drain A No. Beacon St. FROM MANHOLE 9 TO MANHOLE 10 Outfall
 TYPE OF PIPE VC TYPE OF JOINTS 2' LINE & GRADE Steep CLEANLINESS Good

REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.	REF. NO.	FOOTAGE	REMARKS	CLOCK REF.	PHOTO NO.
1	200	End 24" VC at river			31				
2	140	Dip 3"			32				
3	130	Dip 3"			33				
4	126	End dip			34				
5	122	OSJ Rebar wedged			35				
6	122	across pipe	9-3		36				
7	122	Roots visible	9-3		37				
8	98	CPL	11		38				
9	61	Ctr DMH 9B			39				
10	8	Ctr DMH 9A			40				
11		(same MH - error in footage display)			41				
12					42				
13	27	Ctr DMH 9A			43				
14	25	End 24" VC pipe			44				
15	19	CPL	12		45				
16	17	CPL	12		46				
17	12	CPL	12		47				
18					48				
19					49				
20					50				
21					51				
22					52				
23					53				
24					54				
25					55				
26					56				
27					57				
28					58				
29					59				
30					60				

SPECIAL NOTES Drain Line A - 24" outfall
Introduced camera at outfall and towed back
to No. Beacon St.
Length 9 to 9A = 27'
9A 9B = 53'
9B 10 = 139' Outfall
Total 219

VIDEO TAPE

BETA: B-1 B-2 B-3

START TIME: _____

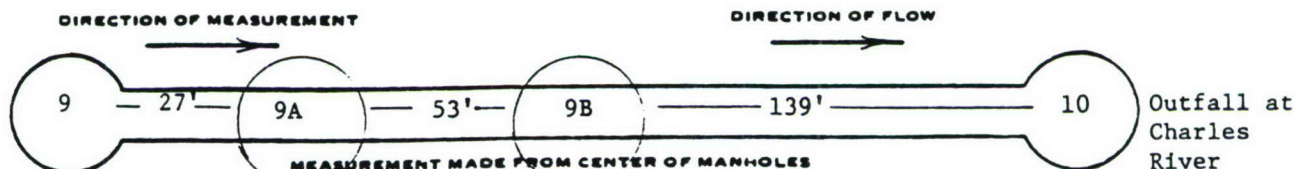
STOP TIME: _____

VHS: SP LP EP #2

START TIME: 2815

STOP TIME: 3133

SECTION LENGTH 219' LINE SIZE 24" MANHOLE CONDITIONS Brick



AP-26464

No. Beacon St.



EASTERN PIPE SERVICE, INC.

SEWER SYSTEM EVALUATION - MAINTENANCE - REHABILITATION
DIESEL ROAD - NASHUA, NEW HAMPSHIRE 03063
603-889-0929

STANDARD ABBREVIATIONS

PIPE TYPE

DI	- Ductile Iron	VCP	- Vitrified Clay Pipe
RCP	- Reinforced Concrete Pipe	PVC	- Polyvinyl Chloride
AC	- Asbestos Cement	CI	- Cast Iron
TP	- Truss Pipe	CON	- Concrete
		CMP	- Corrugated Metal Pipe

JOINT TYPE

PEC	- Plain End with Collar	HB	- Hot Bituminous (GK)
M	- Mortar	OM	- Oakum/Mortar
SS	- Slip Seal	OR	- O-Ring (Premium)

SURFACE CONDITION

ASP	- Asphalt	CBS	- Cobblestone
CON	- Concrete	SG	- Sand/Gravel
IMP	- Improved Easement	STR	- Structures
NS	- Native Soil	GR	- Grass
RF	- Roof		

LINE SECTIONS DEFECTS

BL	- Blockage	LJ	- Leaking Joint
BP	- Broken Pipe (Missing Piece)	LSC	- Leaking Service Connection
CJ	- Cracked Joint	MD	- Mineral Deposits
CPC	- Cracked Pipe (Circular)	OPJ	- Open Joint
CPL	- Cracked Pipe (Longitudinal)	OSJ	- Offset Joint
CRP	- Crushed Pipe	PG	- Poor Grade
CTR	- Centerline of Manhole	PSC	- Protruding Service Connection
DIP,X	- Dip in Line, X=1 (Begins) or X=2 (Ends)	R, X	- Roots, X=Severity (1-9)
LAS	- Leak Around Service Connection	RSC	- Running Service Connection (Usage)
LG	- Leak through Hole	SC	- Service Connection
EPL	- Evidence of previous leaks	W,X	- Water, X= Inches of Water

MISCELLANEOUS INFLOW

ASC	- Abandoned Service Connection	FLD	- Floor Drain
BCO	- Broken Cleanout	GT	- Grease Trap
BD	- Basement Drain	RL	- Roof Leader
CB	- Catch Basin Connection	SP	- Sump Pump
FD	- Foundation Drain		

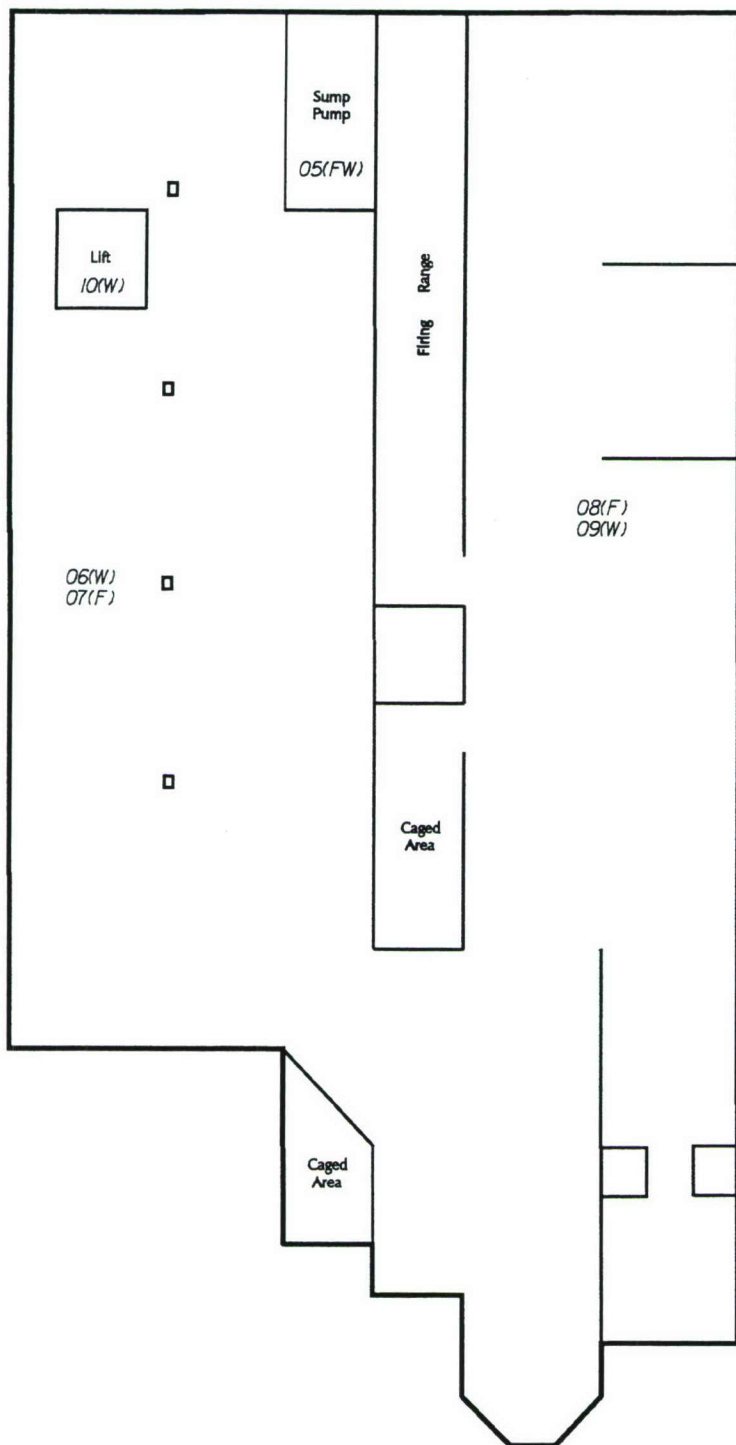


Appendix I

Indoor Sampling Location Diagrams and Information



APPENDIX I.1
WIPE SAMPLE LOCATIONS



Legend	
109(F)	Sample number and type
F	Floor Composite
W	Wall Composite
FW	Combination Floor / Wall Composite

I-1

Army Materials Technology Laboratory

Wipe Sample Locations

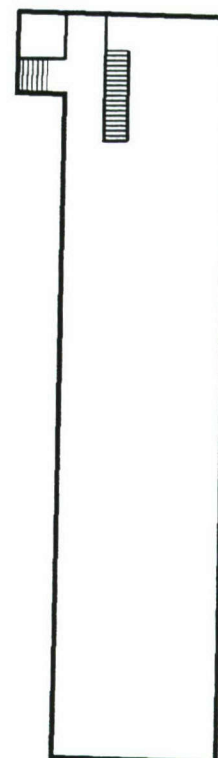
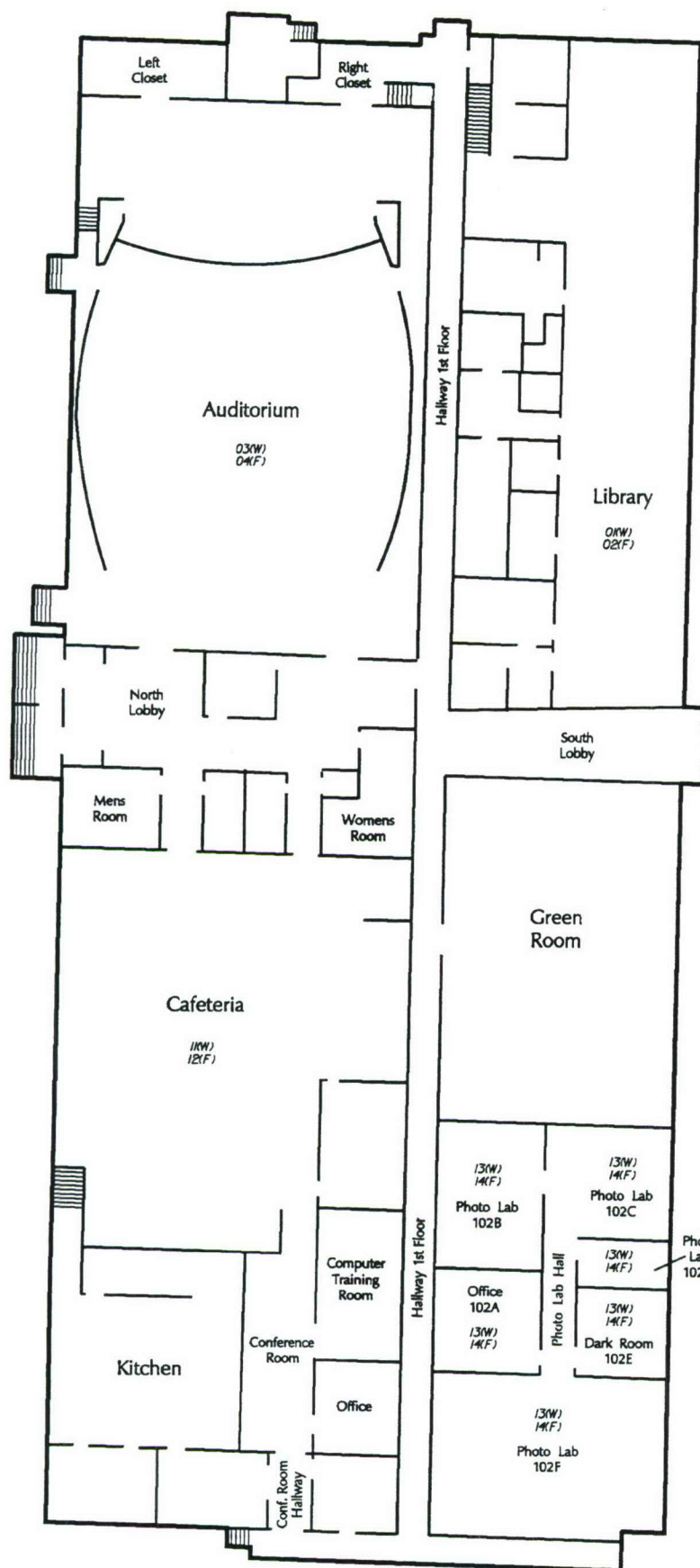
Building No. 36
Basement

↑
N
↓

Approximate scale: unknown

Legend

109(F)	Sample number and type
F	Floor Composite
FD	Floor Drain
FH	Fume Hood
LEV	Local Exhaust Vent
W	Wall Composite



Mezzanine

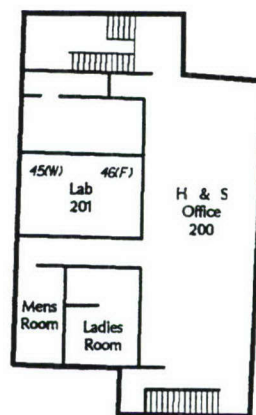
Army Materials Technology Laboratory

Wipe Sample Locations

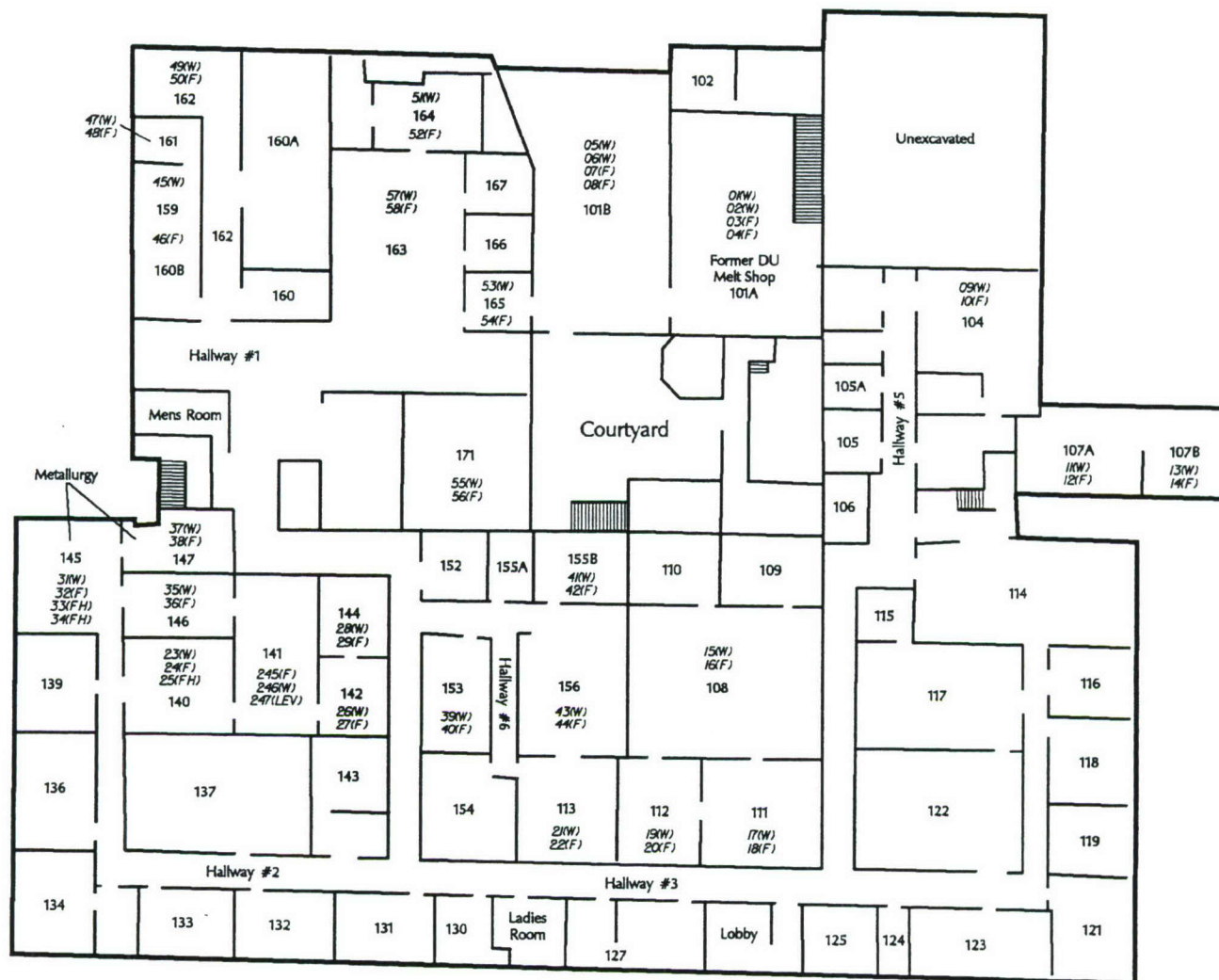
Building No. 36
First Floor, Mezzanine

— Z —

Approximate scale: 1 in = 30 ft



-Z-



Rooms Sampled

101A	Test Furnace (former DU Melting)
101B	Former Oil Storage (now Corrosives Storage)
104	Laboratory
107A	Metals Lab
107B	Laboratory
108	Equipment Calibration
111	Testing Lab
112	Calibration Lab
113	Dark Room
140	Laboratory
141	Photography /Laboratory
142	Dark Room
144	Dark Room
145	Laboratory
146	Metallurgy
147	Laboratory
153	Electron Microscopy Lab
155B	Sample Prep. Lab
156	Electron Microscopy Lab
159	Former Laboratory
161	Sample Prep /Metals Lab
162	Sample Prep /Metals Lab
163	Custodial/Drum Storage
164	Laboratory
165	Drum Storage

Legend

109(F)	Sample number and type
F	Floor Composite
FD	Floor Drain
FH	Fume Hood
LEV	Local Exhaust Vent
W	Wall Composite

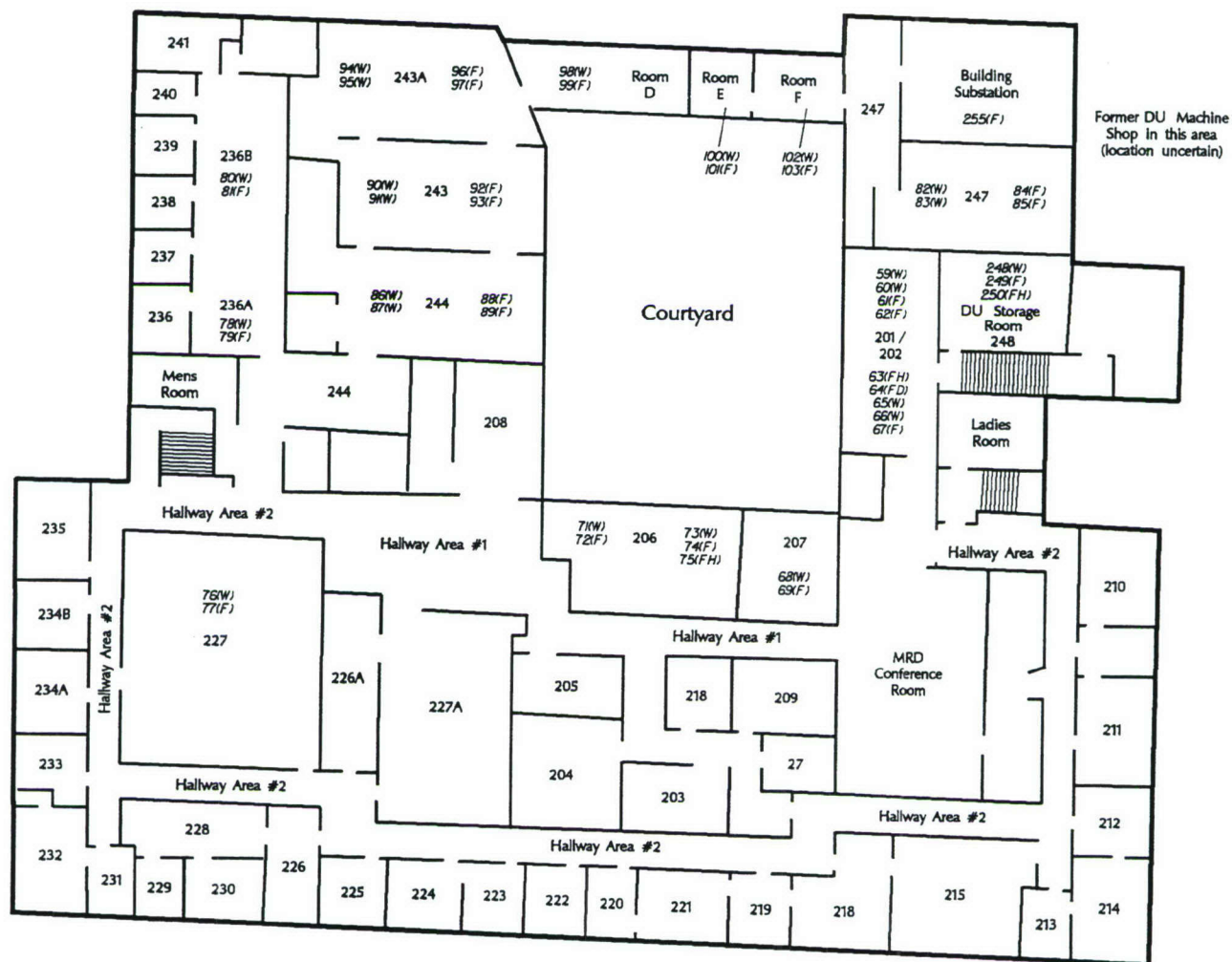
Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 39
First Floor



Approximate scale: 1 in = 25 ft



Rooms Sampled

201 / Electrochemical
 202 Corrosion Lab
 206 Stress Corrosion Lab
 207 High Temperature Corrosion Lab
 227 Materials Testing Lab
 236A Robotics (contains quench tanks and furnaces)
 236B Robotics (contains quench tanks and furnaces)
 243 Former Heat Treating Area
 243A Quench Tank Area
 244 Oil Cooling Area
 247 Plasma Lab / Pyrometer
 248 Former DU Testing
 D Heat Treating / Arc Welding
 E Heat Treating / Arc Welding
 F Heat Treating / Arc Welding

Legend

109(F) Sample number and type
 F Floor Composite
 FD Floor Drain
 FH Fume Hood
 LEV Local Exhaust Vent
 W Wall Composite

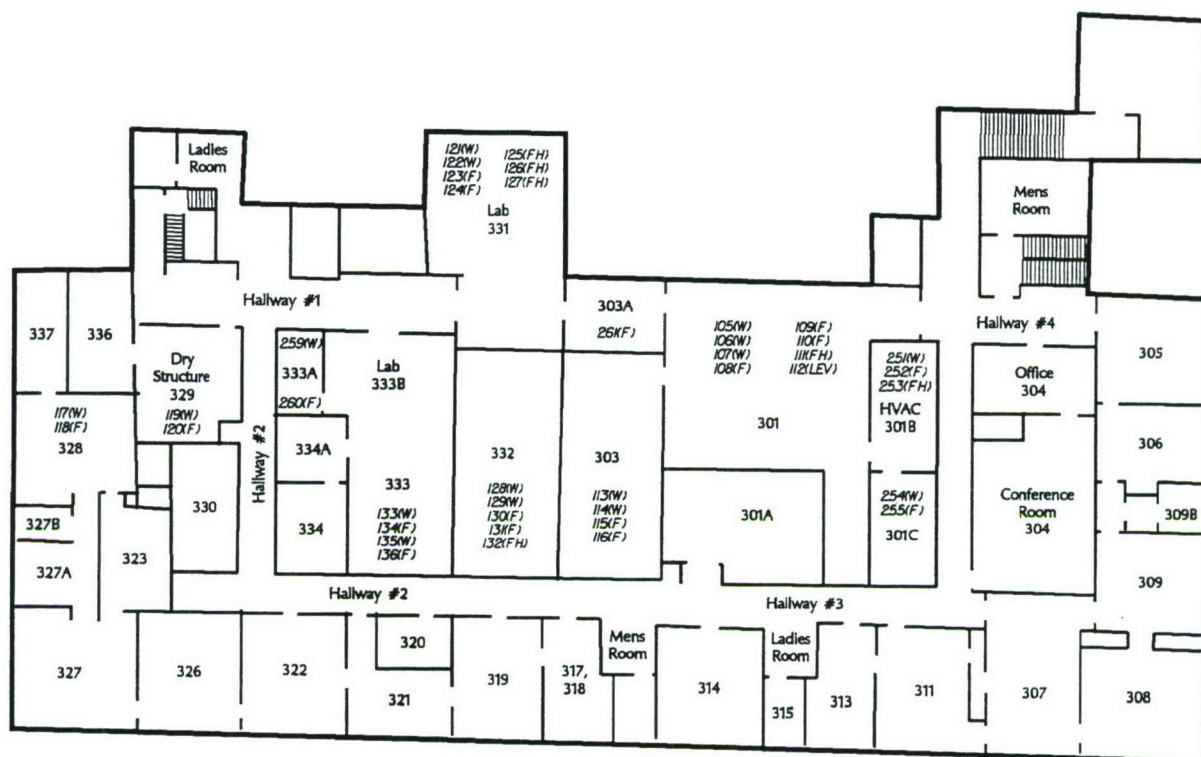
Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 39
 Second Floor



Approximate scale: 1 in = 25 ft



Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 39
Third Floor



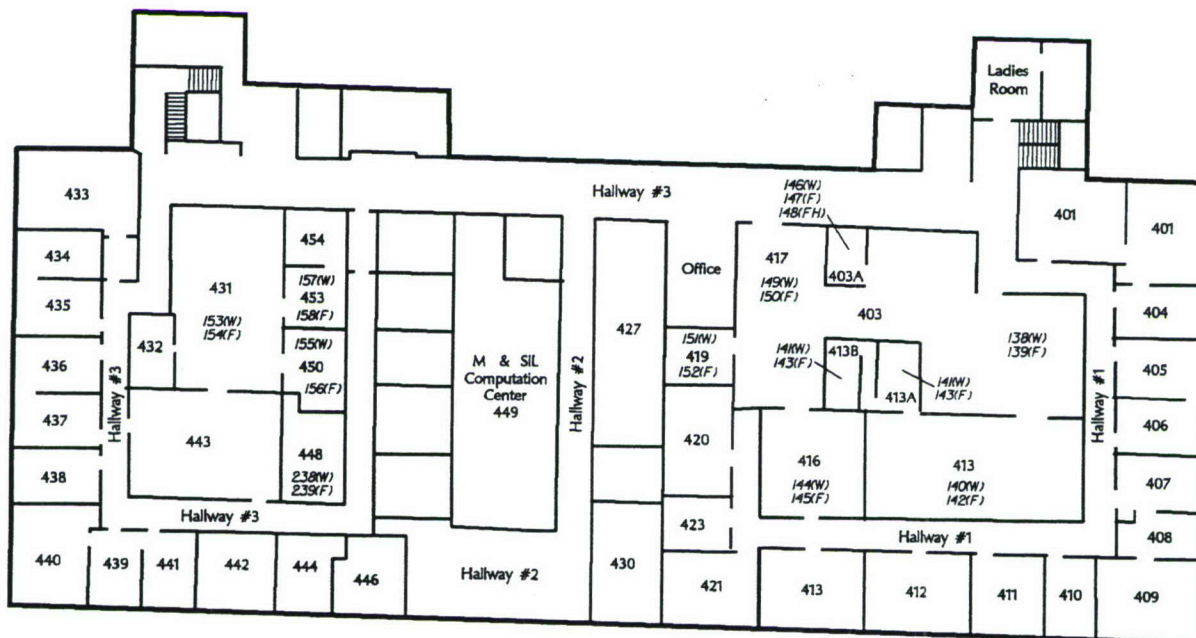
Approximate scale: 1 in = 30 ft

Rooms Sampled

301 Laboratory
301B Laboratory
301C X-Ray
303 Composites/Metals Lab
303A Sound Proof Ballistics Testing Room
328 Laboratory
329 Dry Structure Lab
331 Laboratory
332 Laboratory
333 Laboratory
333A Office (former lab)

Legend

(109F) Sample number and type
F Floor Composite
FD Floor Drain
FH Fume Hood
LEV Local Exhaust Vent
W Wall Composite



Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 39
Fourth Floor



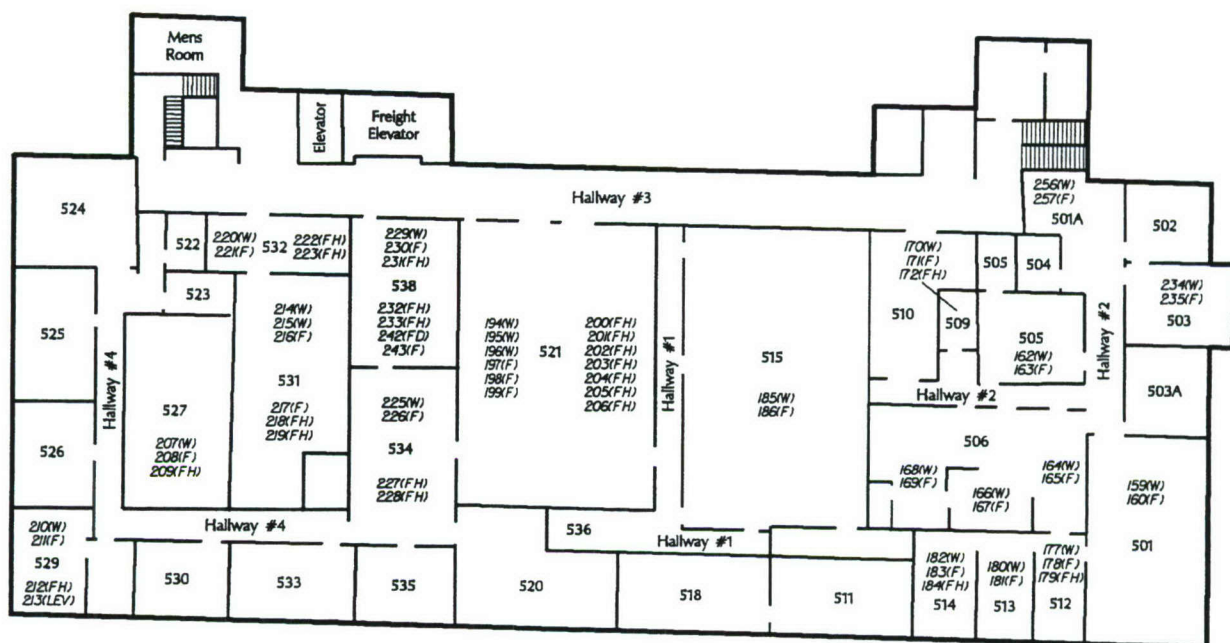
Approximate scale: 1 in = 30 ft

Rooms Sampled

403	Strength of Materials Lab
403A	Laboratory
413	Helium Neon Laser Lab
413A	Dark Room
413B	Dark Room
416	Laser Lab
417	Laboratory
419	Laboratory
431	Storage
448	Laboratory
450	Metals Lab
453	Laboratory

Legend

109(F)	Sample number and type
F	Floor Composite
FD	Floor Drain
FH	Fume Hood
LEV	Local Exhaust Vent
W	Wall Composite



Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 39
Fifth Floor



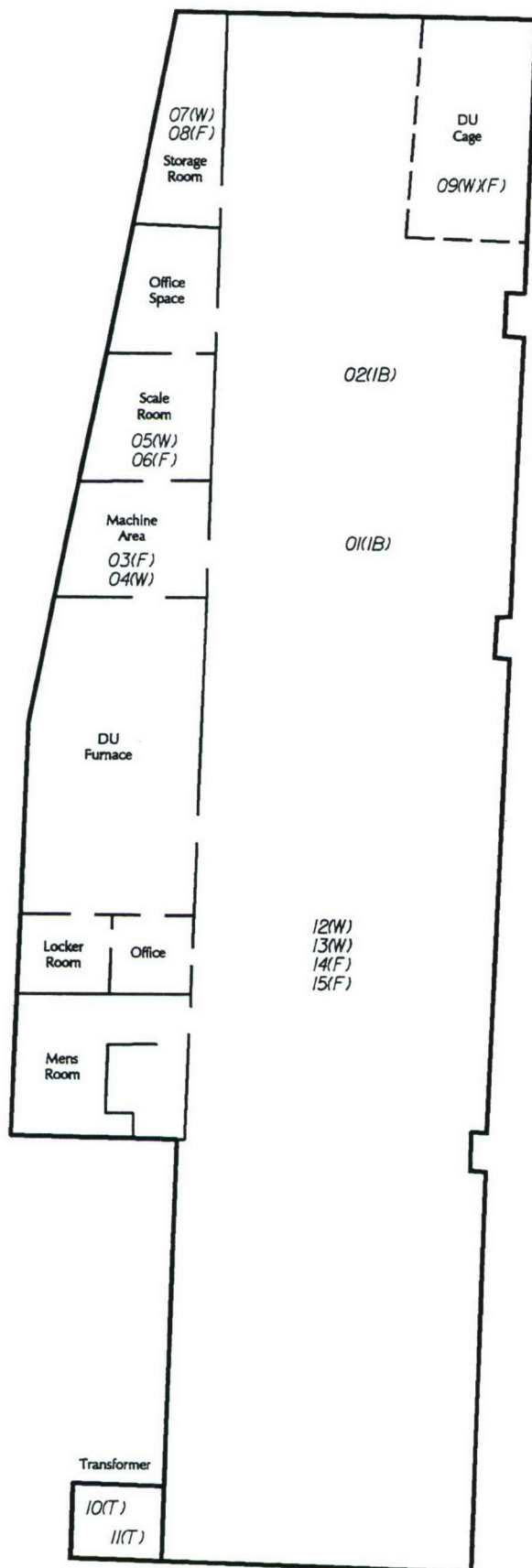
Approximate scale: 1 in = 30 ft

Rooms Sampled

- 501 Storage
- 501A Laboratory
- 503 Possible Past Lab
- 505 Laboratory
- 506 Laboratory
- 509 Laboratory
- 512 Laboratory
- 513 Laboratory
- 514 Laboratory
- 515 Laboratory
- 521 Laboratory
- 527 Laboratory
- 529 Laboratory
- 531 Corrosives Lab
- 532 Laboratory
- 534 Laboratory
- 538 Electroplating Lab

Legend

- 109(F) Sample number and type
- F Floor Composite
- FD Floor Drain
- FH Fume Hood
- LEV Local Exhaust Vent
- W Wall Composite



Legend

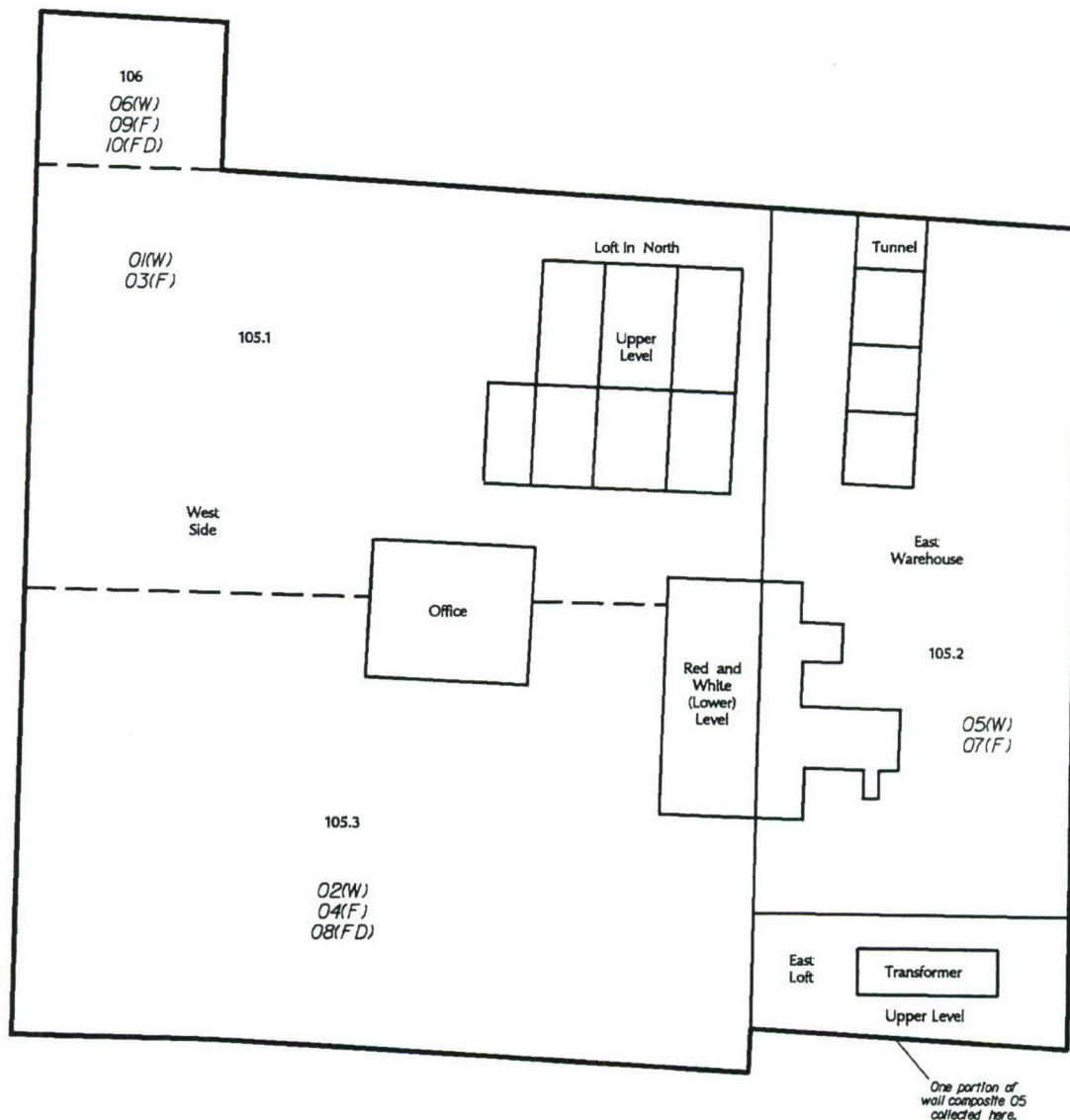
109(F)	Sample number and type
F	Floor Composite
1B	I-Beam
T	Transformer Composite
W	Wall Composite

Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 43
First Floor

—Z—



Rooms Sampled

105.1 Boiler Room
105.2 Warehouse
105.3 Boiler Room
106 Storage

Legend

109(F) Sample number and type
F Floor Composite
FD Floor Drain
W Wall Composite

Army Materials Technology Laboratory

Wipe Sample Locations

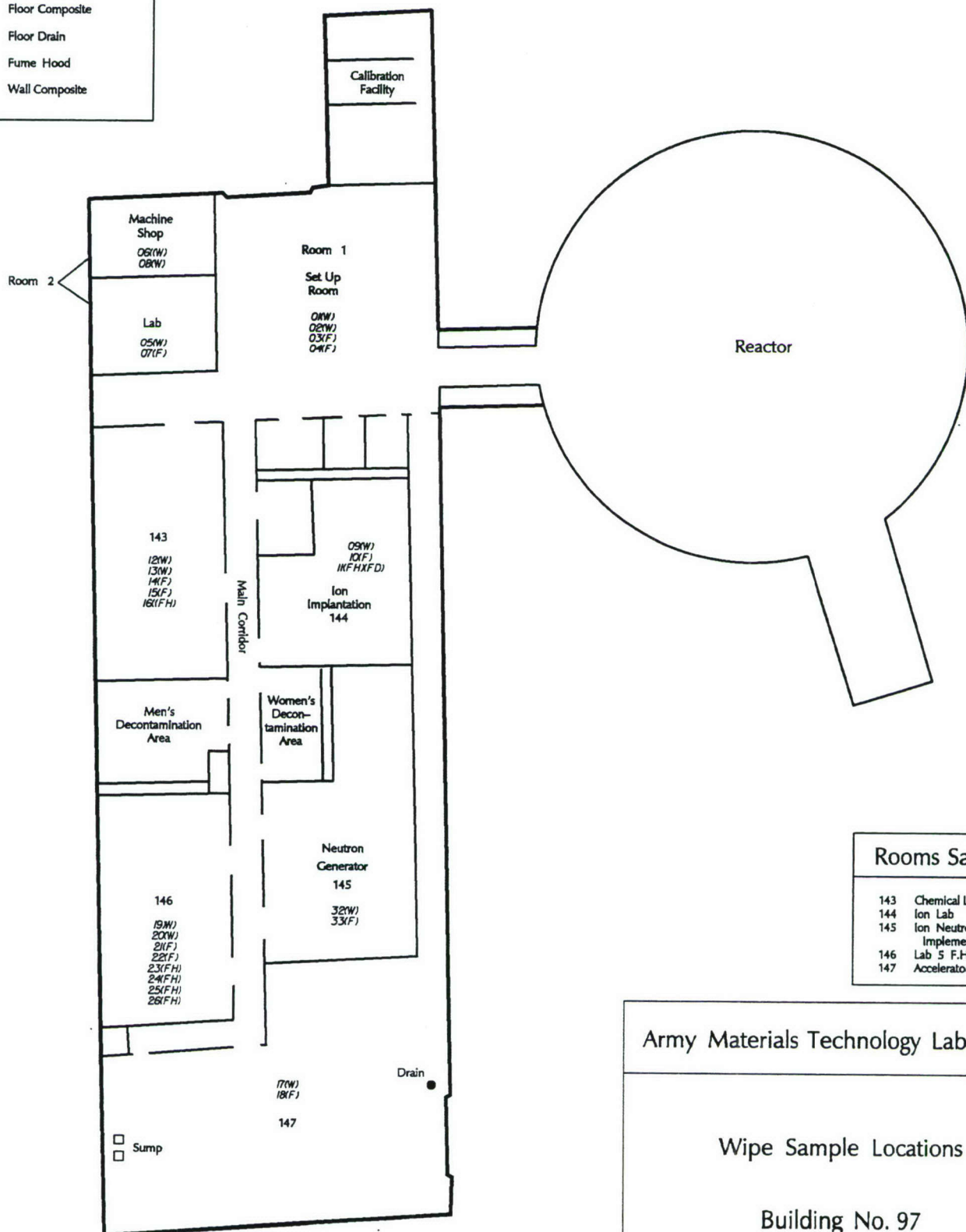
Building No. 60
First Floor



Approximate scale: 1 in = 20 ft

Legend

109(F)	Sample number and type
F	Floor Composite
FD	Floor Drain
FH	Fume Hood
W	Wall Composite



Rooms Sampled

143	Chemical Lab
144	Ion Lab
145	Ion Neutron Implementation Lab
146	Lab 5 F.H.
147	Accelerator Lab

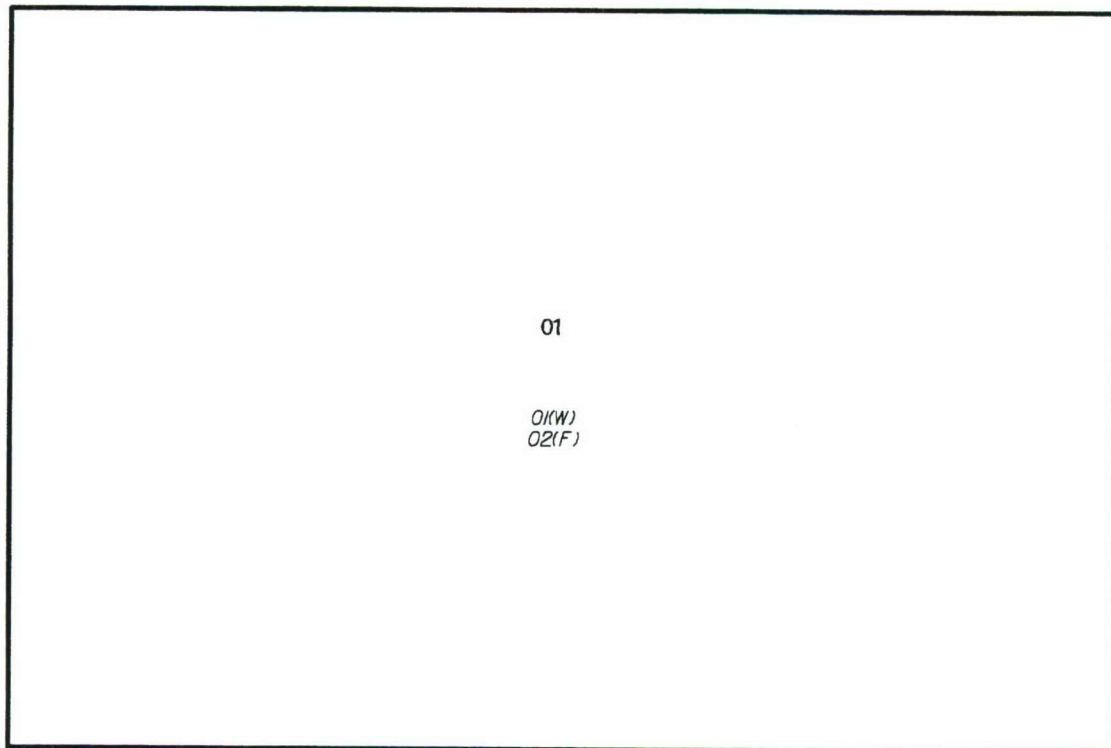
Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 97
First Floor



Approximate scale: 1 in = 25 ft



Legend	
01(F)	Sample number and type
F	Floor Composite
W	Wall Composite

I-12

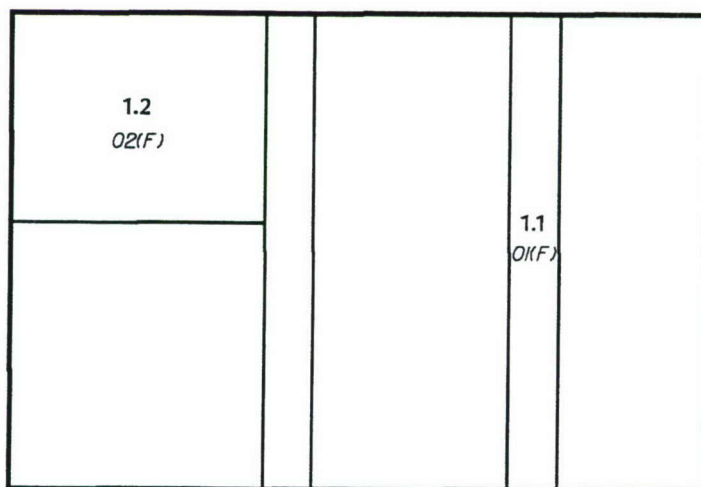
Army Materials Technology Laboratory

Wipe Sample Locations

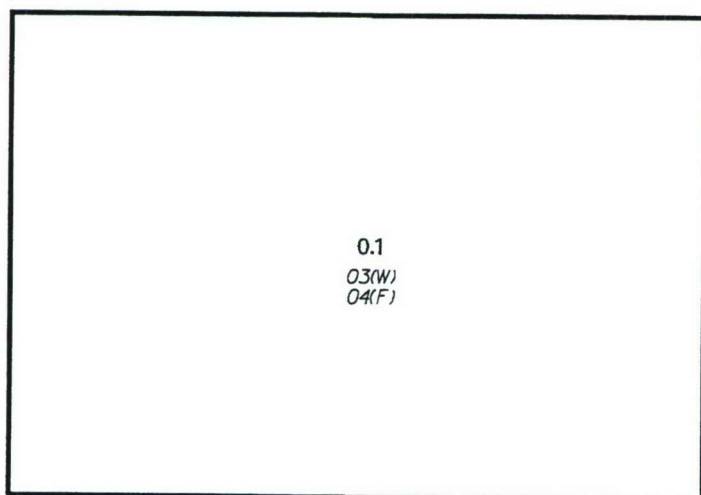
Building No. 117
Basement

N

Approximate scale: unknown



First Floor



Basement

Legend	
109(F)	Sample number and type
F	Floor Composite
W	Wall Composite

I-13

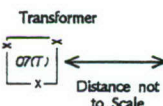
Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 118

First Floor, Basement

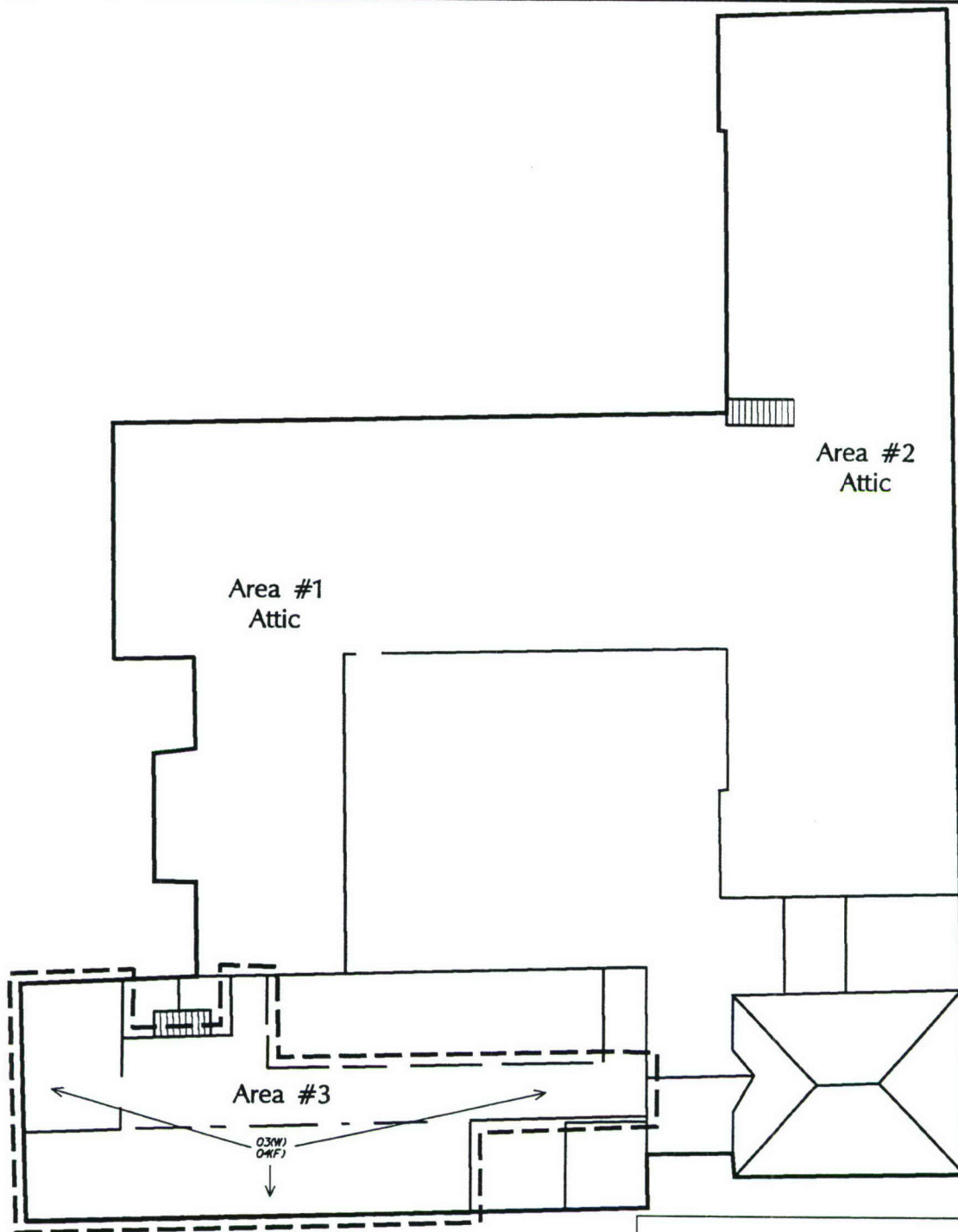
Approximate scale: unknown



Approximate scale: 1 in = 30 ft

109(F)	Sample number and type
F	Floor Composite
W	Wall Composite
T	Transformer Composite

152



Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 131
Third Floor

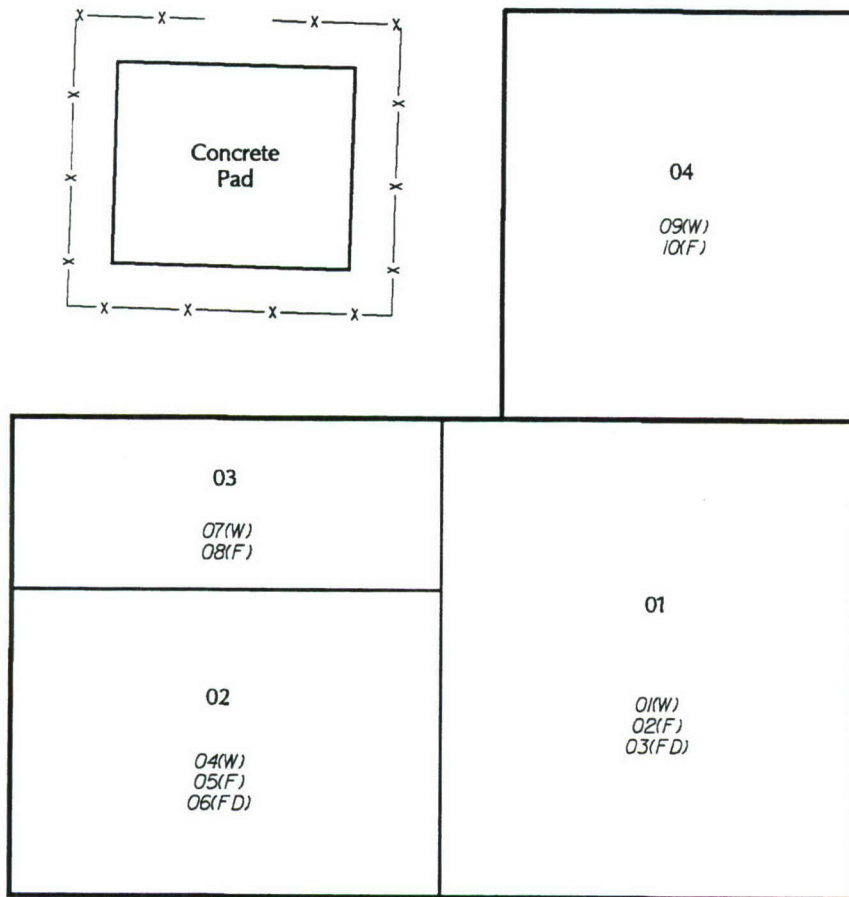
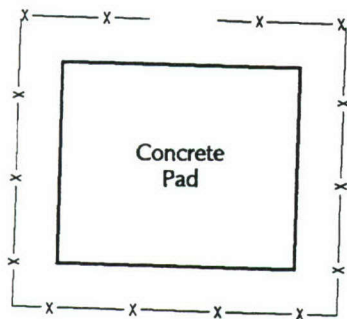


Approximate scale: 1 in = 30 ft

Legend

109(F)	Sample number and type
F	Floor Composite
W	Wall Composite

I-15



Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 243



Approximate scale: unknown

Rooms Sampled

- 01 Solvents Storage
- 02 Solvents Storage
- 03 Acids Storage
- 04 Tin Shed

Legend

- 109(F) Sample number and type
- F Floor Composite
- FD Floor Drain
- W Wall Composite

Legend

109(F)	Sample number and type
F	Floor Composite
FD	Floor Drain
FH	Fume Hood
W	Wall Composite

Rooms Sampled

106	Laser Lab
119	Magnetics Lab
120	Wet Chemistry Lab
121	Surface Analysis Lab
122	Laser Lab
125	Laser Lab
128	Laboratory
132	Mechanical Room
133	X-Ray Diffraction I.F.H.
134	Laboratory
135	Laboratory
136	Laboratory
137	Office
138	Ionizing Radiation

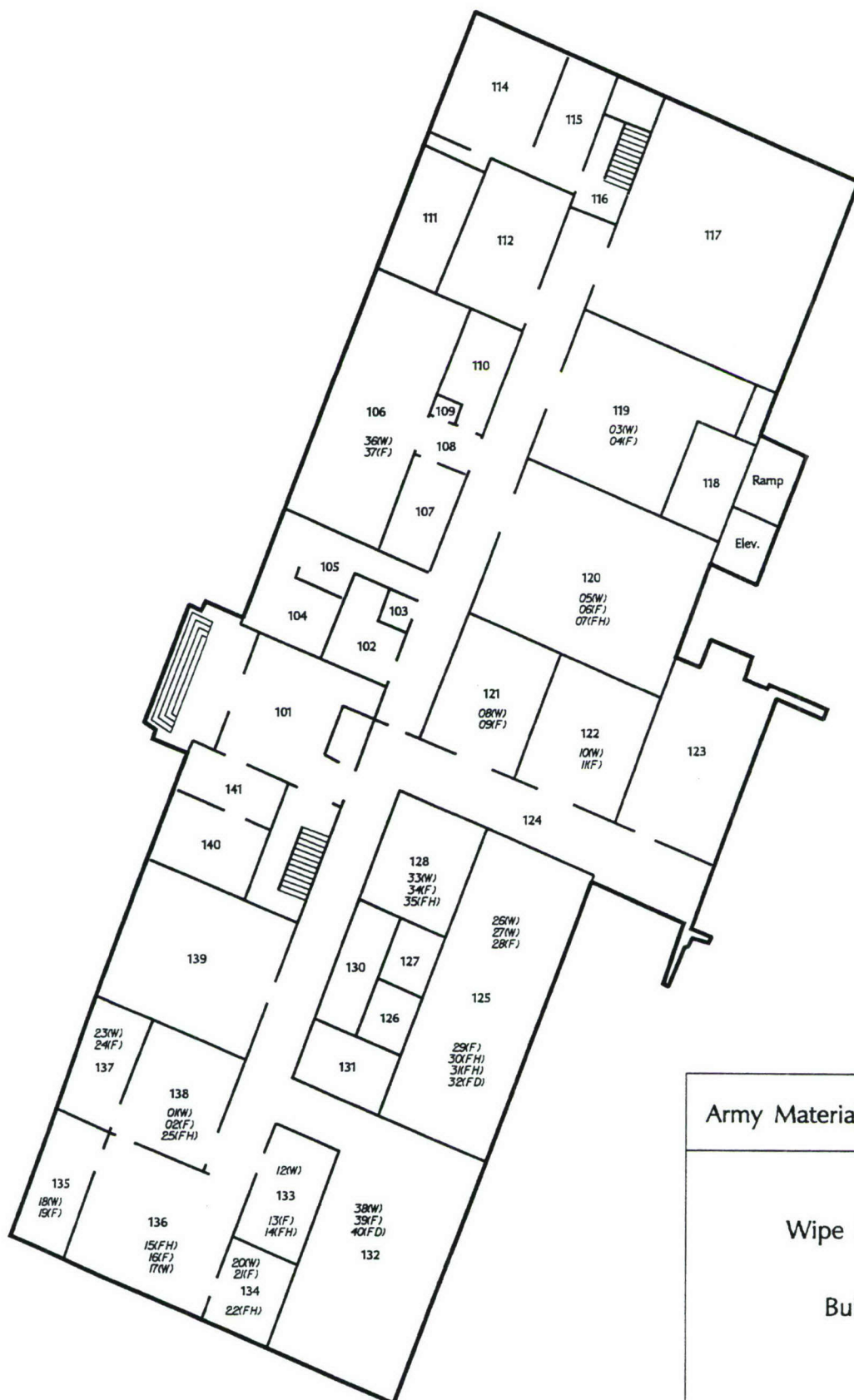
Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 292
First Floor

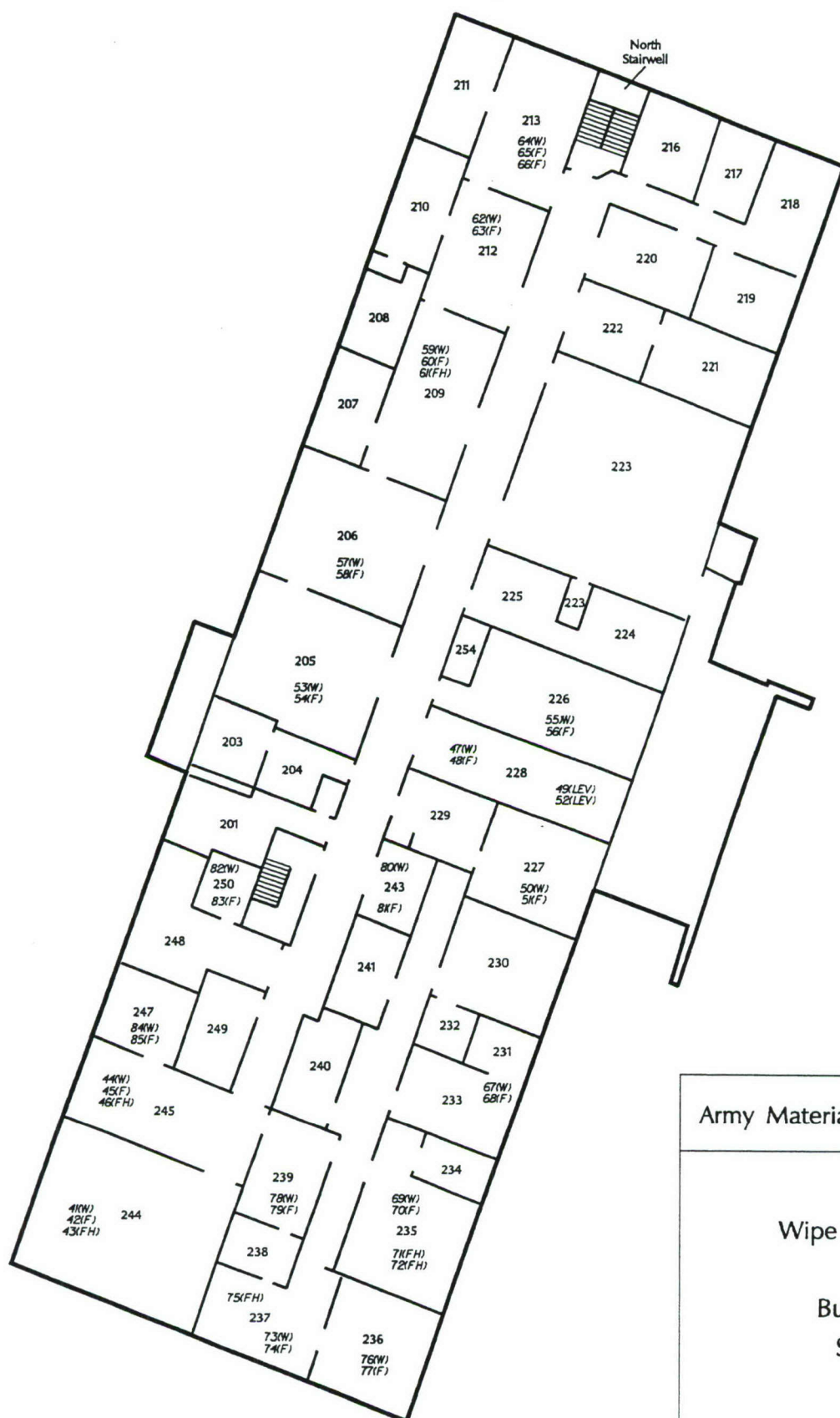


Approximate scale: 1 in = 25 ft



Legend

109(F)	Sample number and type
F	Floor Composite
FH	Fume Hood
LEV	Local Exhaust Vent
W	Wall Composite



Rooms Sampled

205	X-Ray Diffraction
206	X-Ray
209	X-Ray
212	Laboratory
213	X-Ray
226	Scanning Electron Microscopy
227	Sample Prep. Room
228	Laboratory
231 /	
233	Laboratory
235	Inorganic Chemicals
236	Laboratory
237	Laboratory
243	Former Laboratory
244	Powder Laboratory
245	Laboratory
247	Chemical Laboratory
250	Storage Room

Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 292
Second Floor



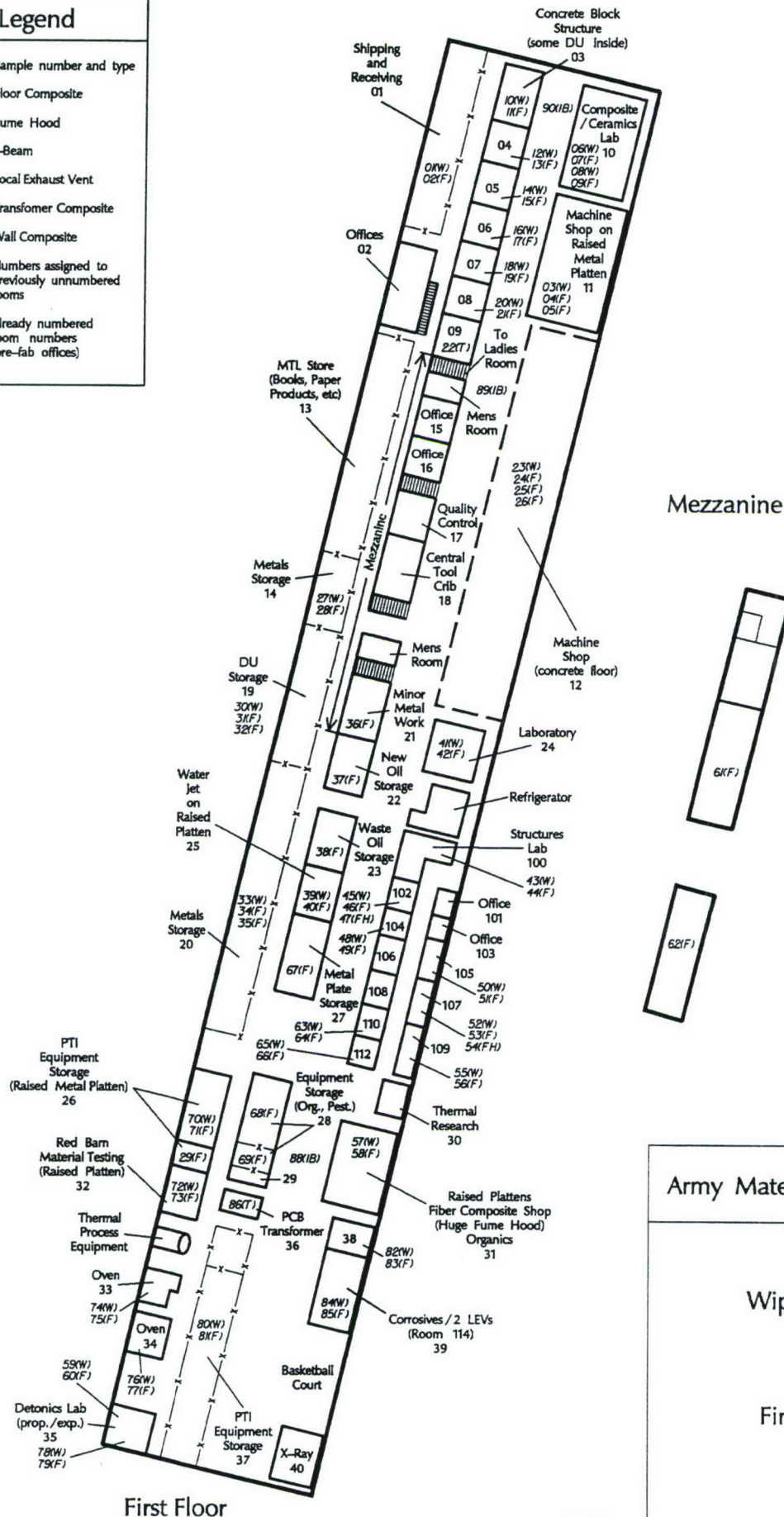
Approximate scale: 1 in = 25 ft

Legend

- 109(F) Sample number and type
- F Floor Composite
- FH Fume Hood
- IB I-Beam
- LEV Local Exhaust Vent
- T Transformer Composite
- W Wall Composite
- 01-40 Numbers assigned to previously unnumbered rooms
- 100-114 Already numbered room numbers (pre-fab offices)

Areas Sampled

- 01 Shipping and Receiving
- 03 DU Storage
- 04 Machining / Storage
- 05 Machining / Storage
- 06 Machining / Storage
- 07 Machining / Storage
- 08 Machining / Storage
- 09 Transformer
- 10 Composite / Ceramics Lab
- 11 Machine Shop
- 12 Machine Shop
- 14 Metals Storage
- 18 Machining (2nd Floor) - Machining
- 19 DU Storage
- 20 Metals Storage
- 21 Minor Metal Work (1st Floor)
- 22 Machining (2nd Floor)
- 23 New Oil Storage
- 24 Waste Oil Storage
- 25 Water Jet
- 26 Equipment Storage
- 27 Metal Plate Storage
- 31 Fiber Composite Shop
- 32 Materials Testing
- 33 Oven
- 34 Oven
- 35 Detonics Laboratory
- 36 Transformer
- 37 Equipment Storage
- 38 /
- 113 Fiber Winding
- 39 /
- 114 Corrosives Lab
- 100 Structures Laboratory
- 102 Organic / Metals Laboratory
- 104 Organic / Metals Laboratory
- 105 Laboratory
- 107 Laboratory
- 109 Laboratory
- 110 Laboratory
- 112 Laboratory



Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 311
First Floor, Mezzanine

—Z—

Legend

108(F)	Sample number and type
F	Floor Composite
FD	Floor Drain
FH	Fume Hood
IB	I-Beam
LEV	Local Exhaust Vent
W	Wall Composite

Rooms Sampled

1.2	Salt Bath
1.3	South Test Lab
1.4	Ballistics
1.5	Ballistics
1.6	Ballistics
1.7	Ballistics Storage
101	Testing and Prep.
101.1	Laser
102	Storage
103	Storage
105	Tension / Compression Testing
111	DU Machining
113	Tool Crib
114	BE Machining
115	BE Machining
117	DU Machining
118	Tool Room
119	Laboratory
120	Laboratory
121	Laboratory
122	Laboratory
124	Storage
126	Locker Room
135	Plating Shop
137	Former Laboratory
141	Laser Lab
142	Gas Gun Lab
143	Office
144	Office
145	Compressed Gas / Metal Scraps
147	Ballistics
199	Ballistics
199.1	Crystal Growth
	I-Beam
	Ballistics

Army Materials Technology Laboratory

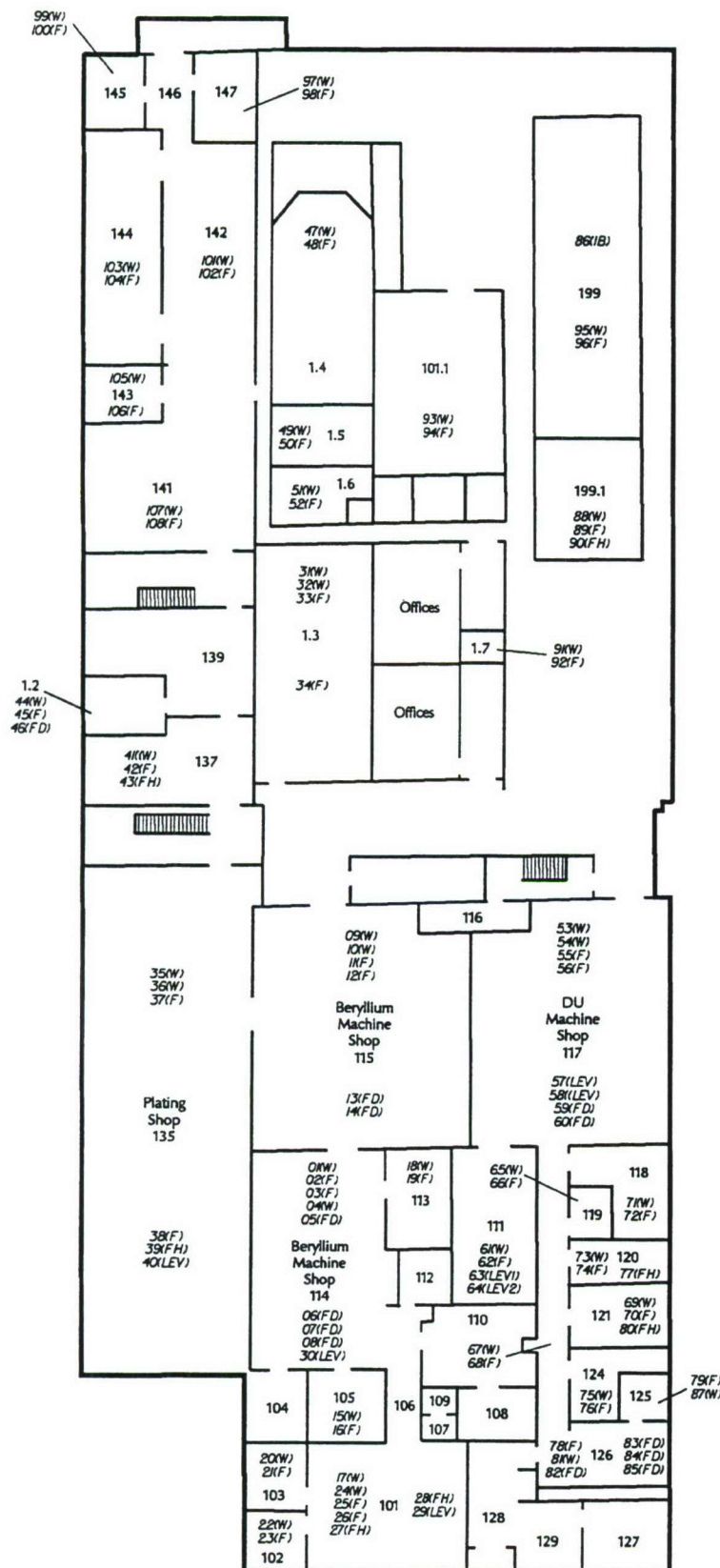
Wipe Sample Locations

Building No. 312

First Floor

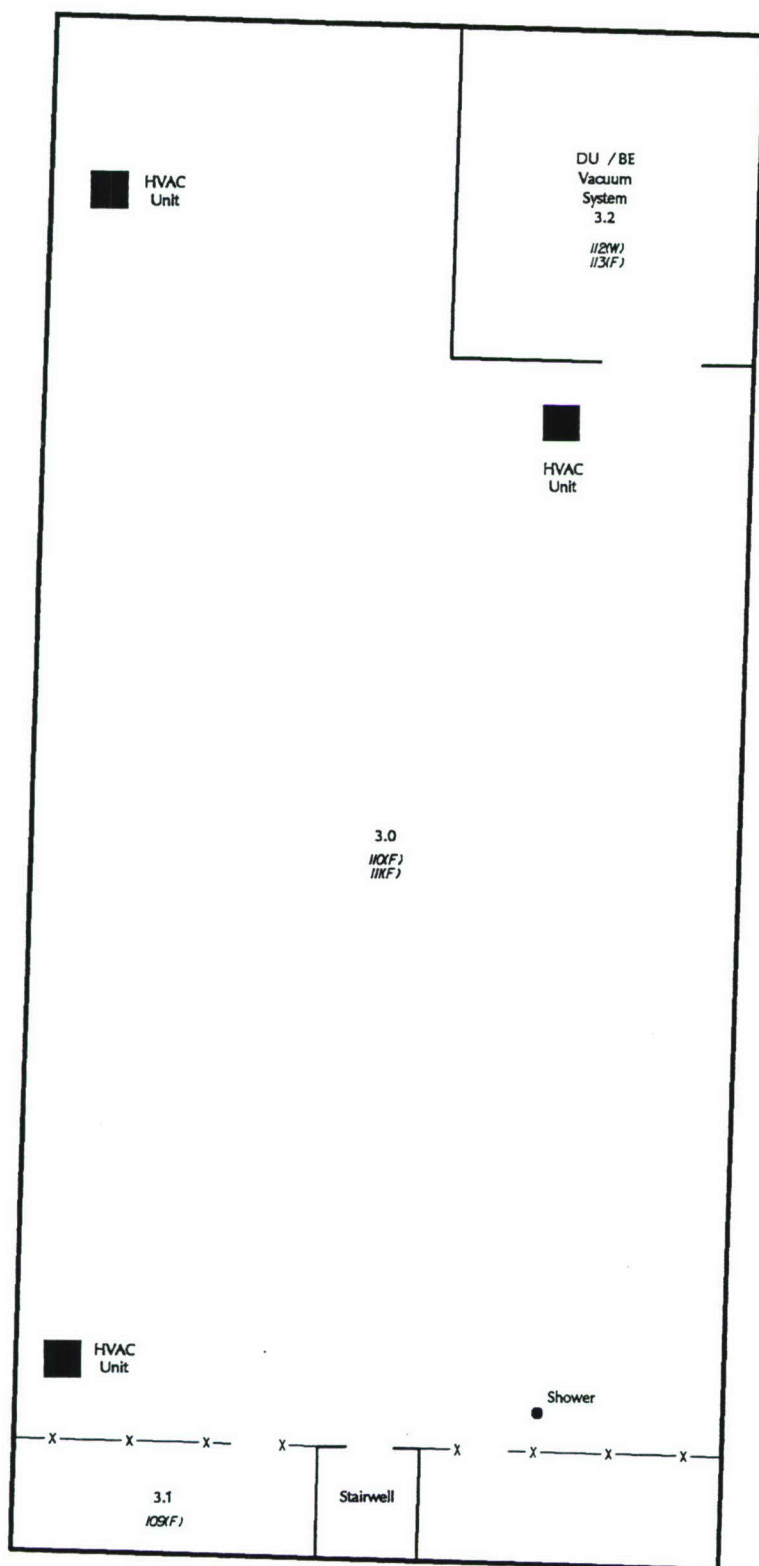


Approximate scale: 1 in = 30 ft



Legend

109(F) Sample number and type
 F Floor Composite
 W Wall Composite



Army Materials Technology Laboratory

Wipe Sample Locations

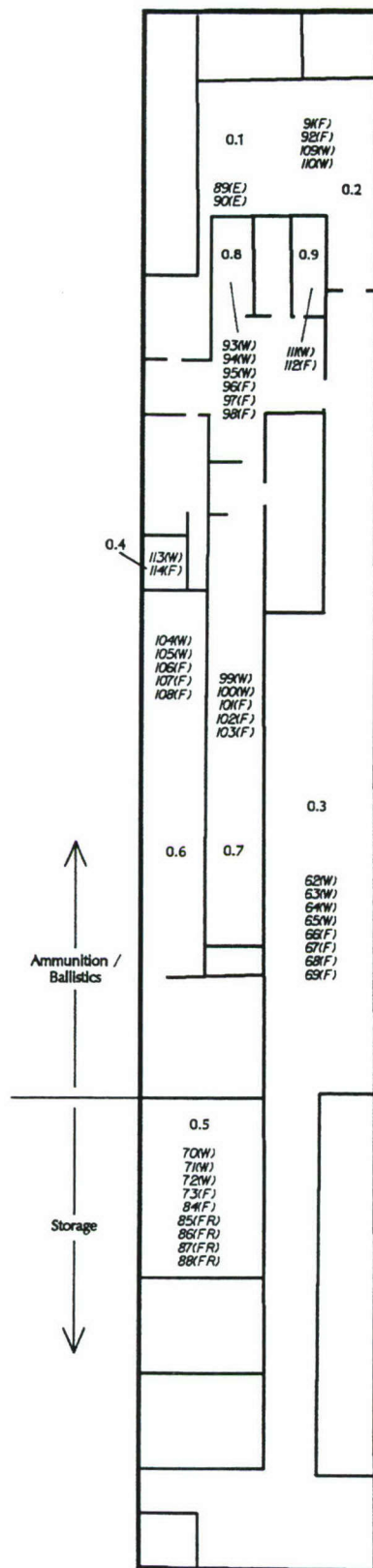
Building No. 312
 Third Floor



Approximate scale: 1 in = 15 ft

Legend

109(F)	Sample number and type
E	Equipment
F	Floor Composite
FR	Filter
W	Wall Composite



Rooms Sampled

0.1	New Air Vent System
0.2	Ammunition Storage
0.3	Metal/Ceramics Storage
0.4	Ammunition Manufacture
0.5	New Air Vent System
0.6	Ballistic Range
0.7	Ballistic Range
0.8	Ballistic Range
0.9	Ballistic Range

Army Materials Technology Laboratory

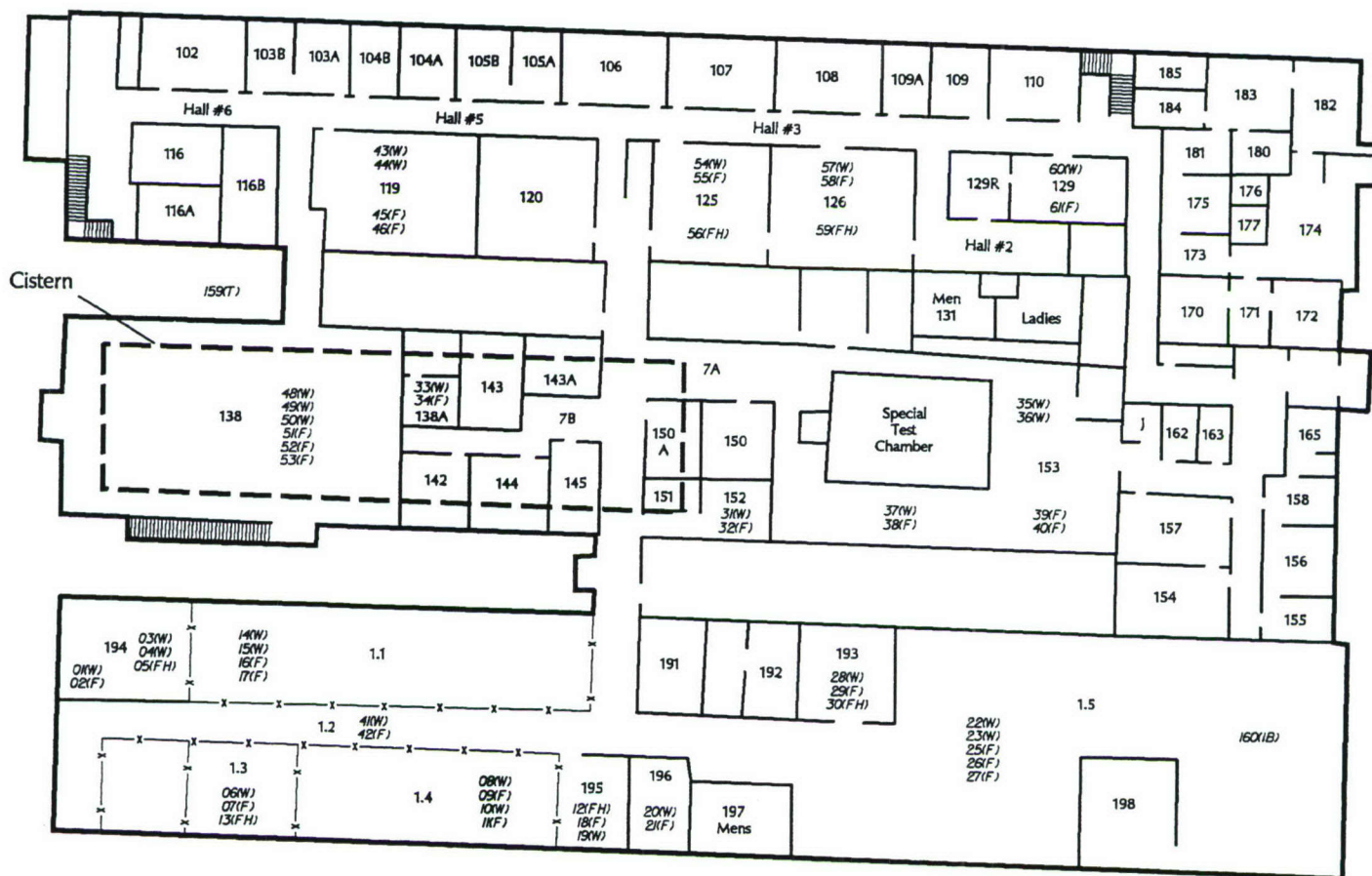
Wipe Sample Locations

Building No. 313

Basement

→ Z ←

Approximate scale: 1 in = 35 ft



Army Materials Technology Laboratory

Wipe Sample Locations

Building No. 313
First Floor



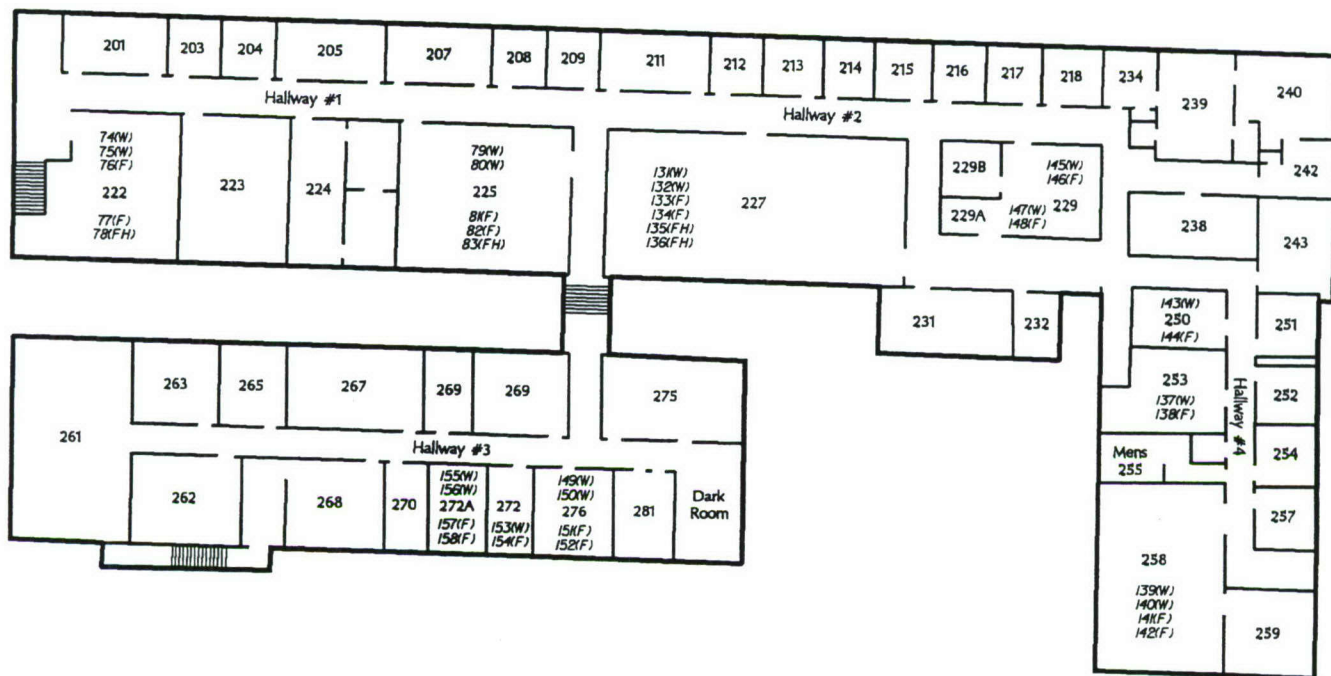
Approximate scale: 1 in = 40 ft

Rooms Sampled

- 119 Weld Lab Office
- 125 Ceramics Lab
- 126 Small Machine Shop
- 129 Laser Lab
- 138 Welding
- 138A Materials Testing
- 152 Composites / Metals Laboratory
- 153 Composites / Metals Laboratory
- 194 Laboratory
- 195 Ceramics Research
- 196 Ceramics Research
- 1.3 IFH
- 1.1 (Room East of 194)
- 1.2 (Between Cage 1 & 3)
- 1.4 Cage 3
- 1.5 Water Jet for Cutting Metals
- 1.5 Metals Foundry

Legend

- 109(F) Sample number and type
- F Floor Composite
- FH Fume Hood
- IB I-Beam
- T Transformer Composite
- W Wall Composite



Rooms Sampled

2.1	Toughened Ceramics Lab
225	Ceramic Mechanical Properties Lab
227	Large Lab
229	Electrooptical Materials Lab
229A	Electrooptical Materials Lab
250	Electronics Lab
253	Electronics Lab
258	Ultrasonic Lab
272	2 Level Lab
272A	Laboratory
276	Training Lab

Legend

(Room Number)	Sample number and type
F	Floor Composite
FH	Fume Hood
W	Wall Composite

Army Materials Technology Laboratory

Wipe Sample Locations

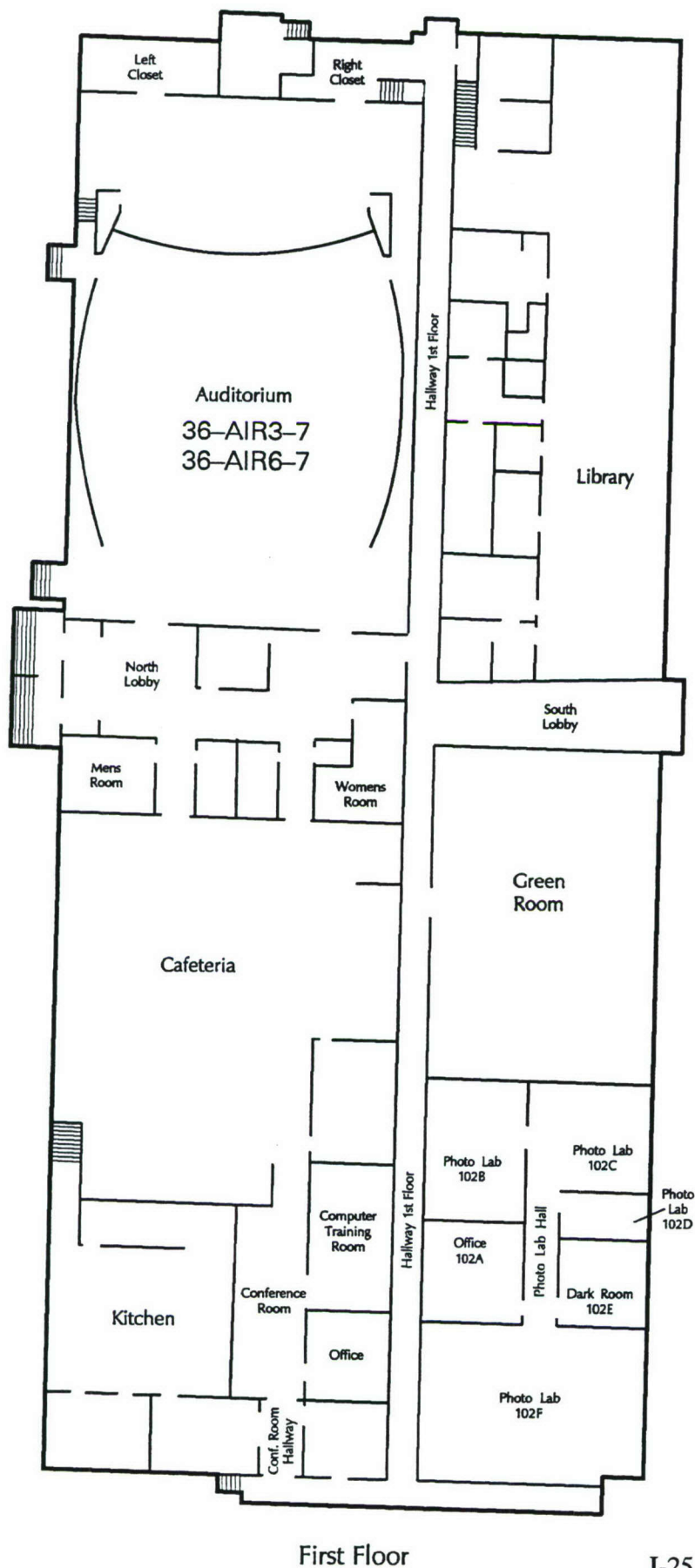
Building No. 313
Second Floor



Approximate scale: 1 in = 40 ft



APPENDIX I.2
AIR SAMPLE LOCATIONS



First Floor

I-25

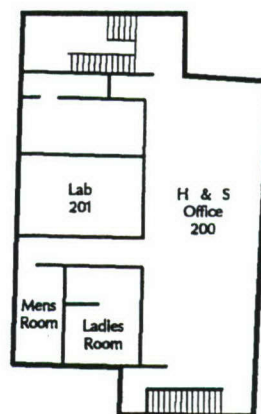
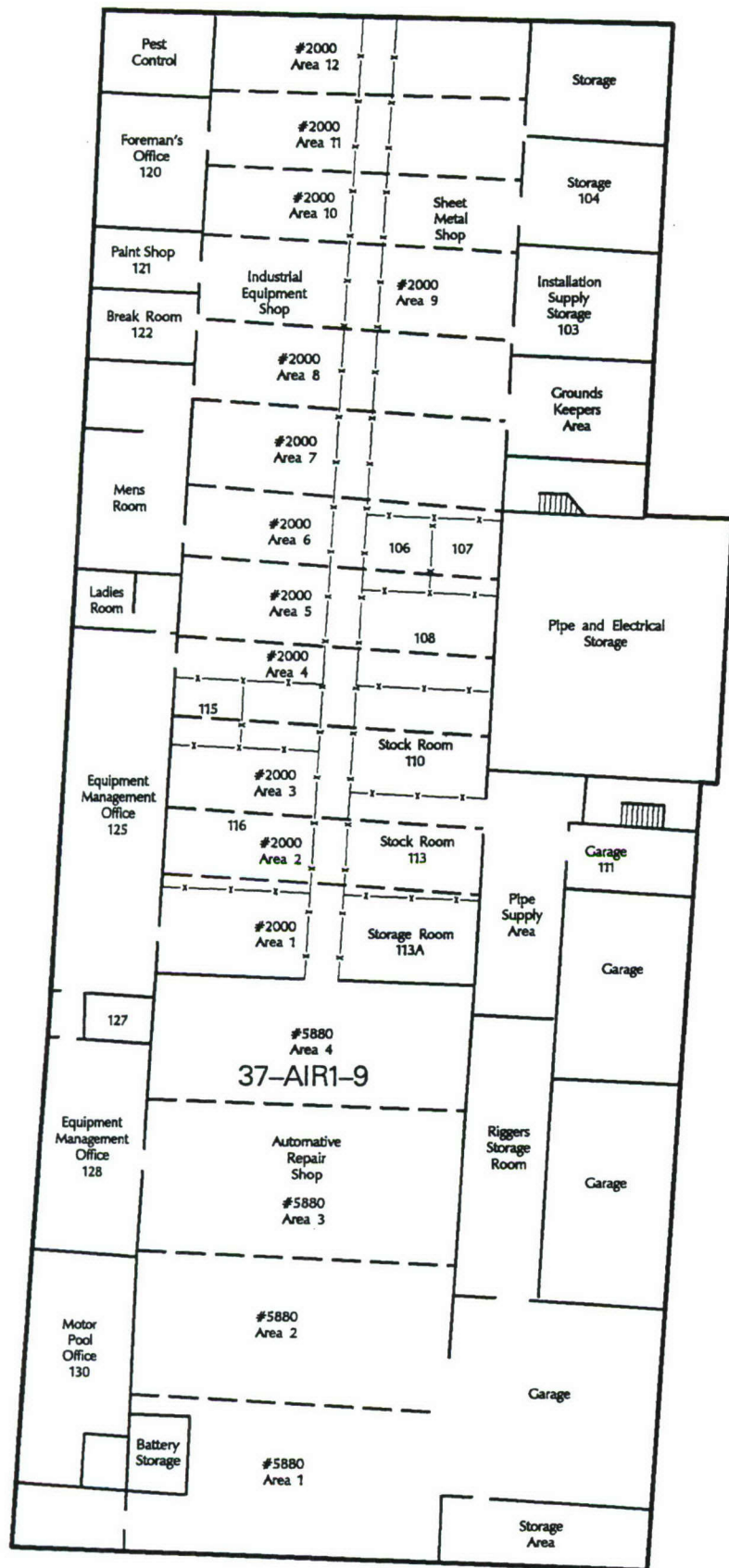
Army Materials Technology Laboratory

Phase 2 Air Sample Locations

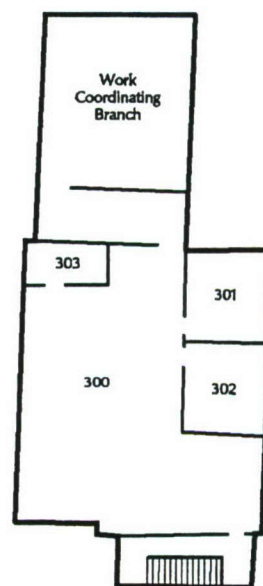
Building No. 36
First Floor, Mezzanine

—Z—

Approximate scale: 1 in - 30 ft



Second Floor



Third Floor
Engineering Plans
and Services

Army Materials Technology Laboratory

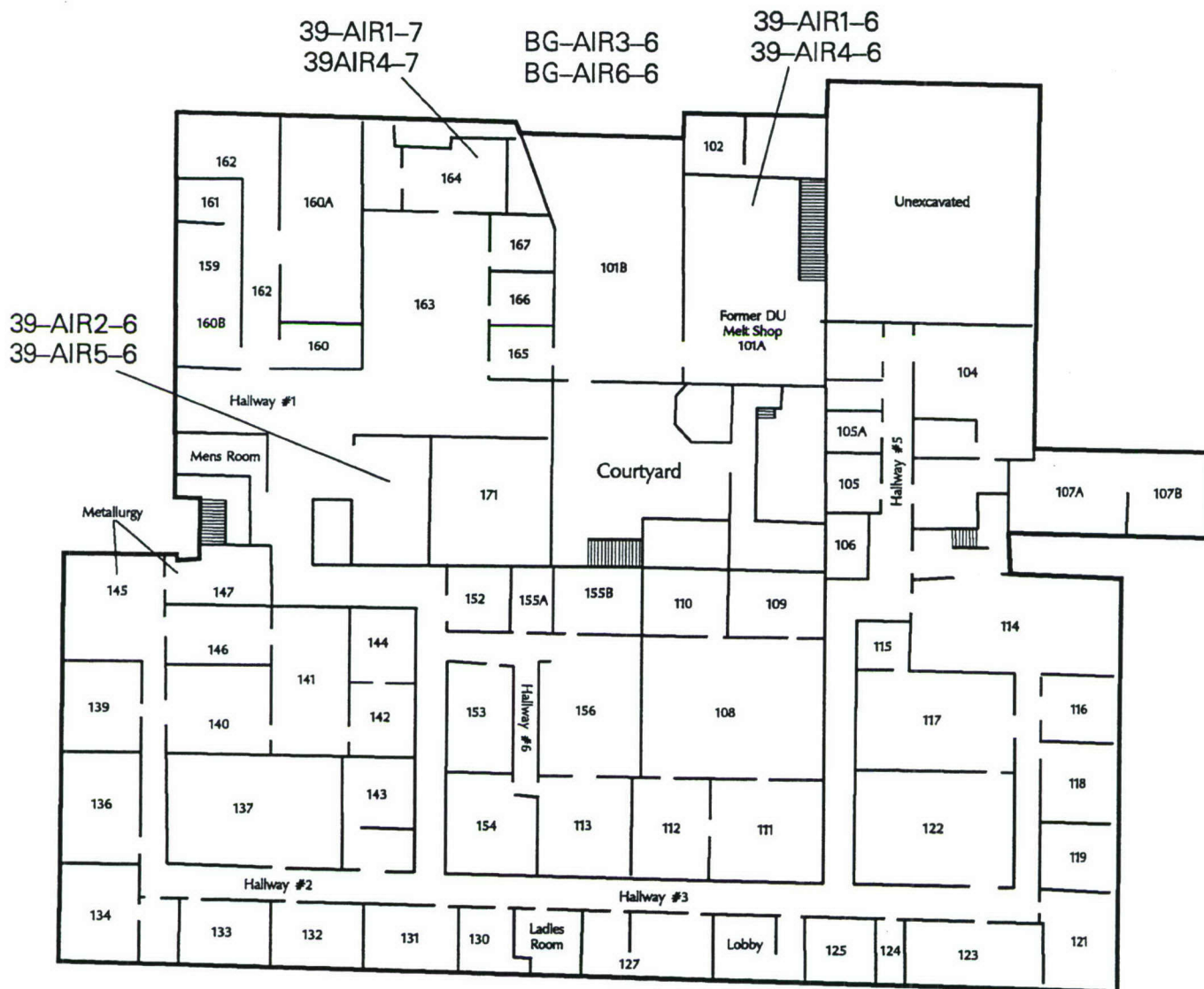
Phase 2 Air Sample Locations

Building No. 37 First Floor



Approximate scale: 1 in = 35 ft

NOTE: The numbered areas were established during the radiological survey to assist in cataloging and reporting results.



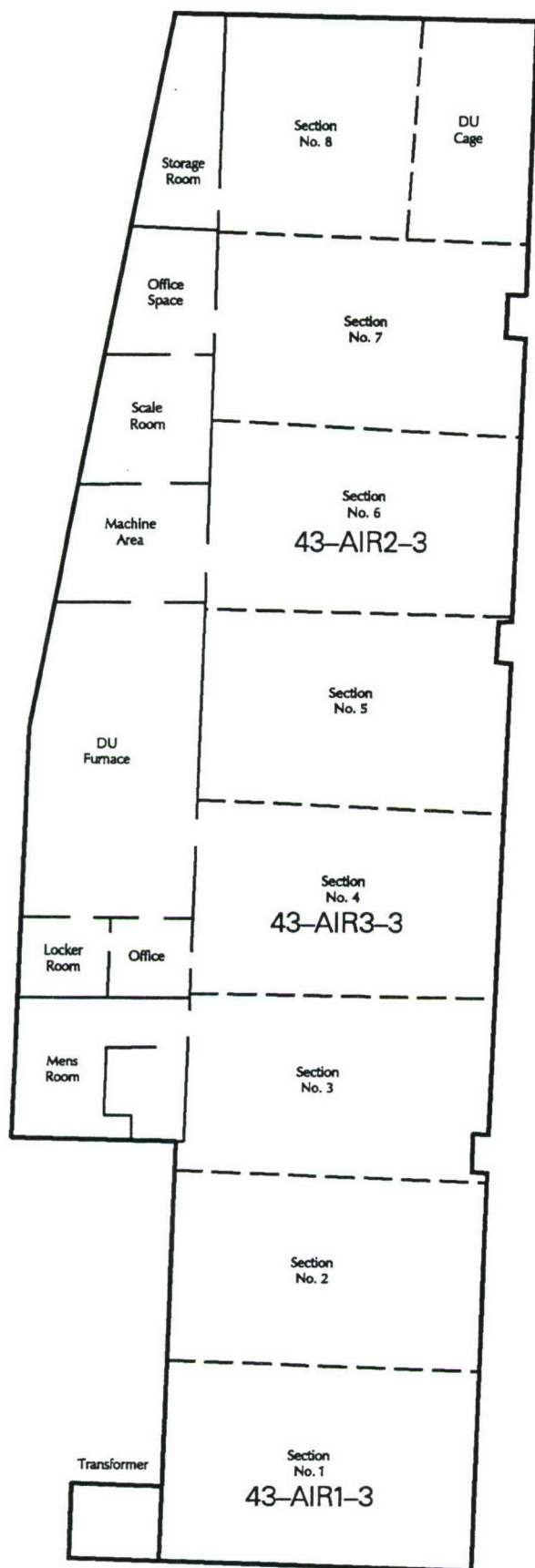
Army Materials Technology Laboratory

Phase 2
Air Sample Locations

Building No. 39
First Floor

N

Approximate scale: 1 in = 25 ft



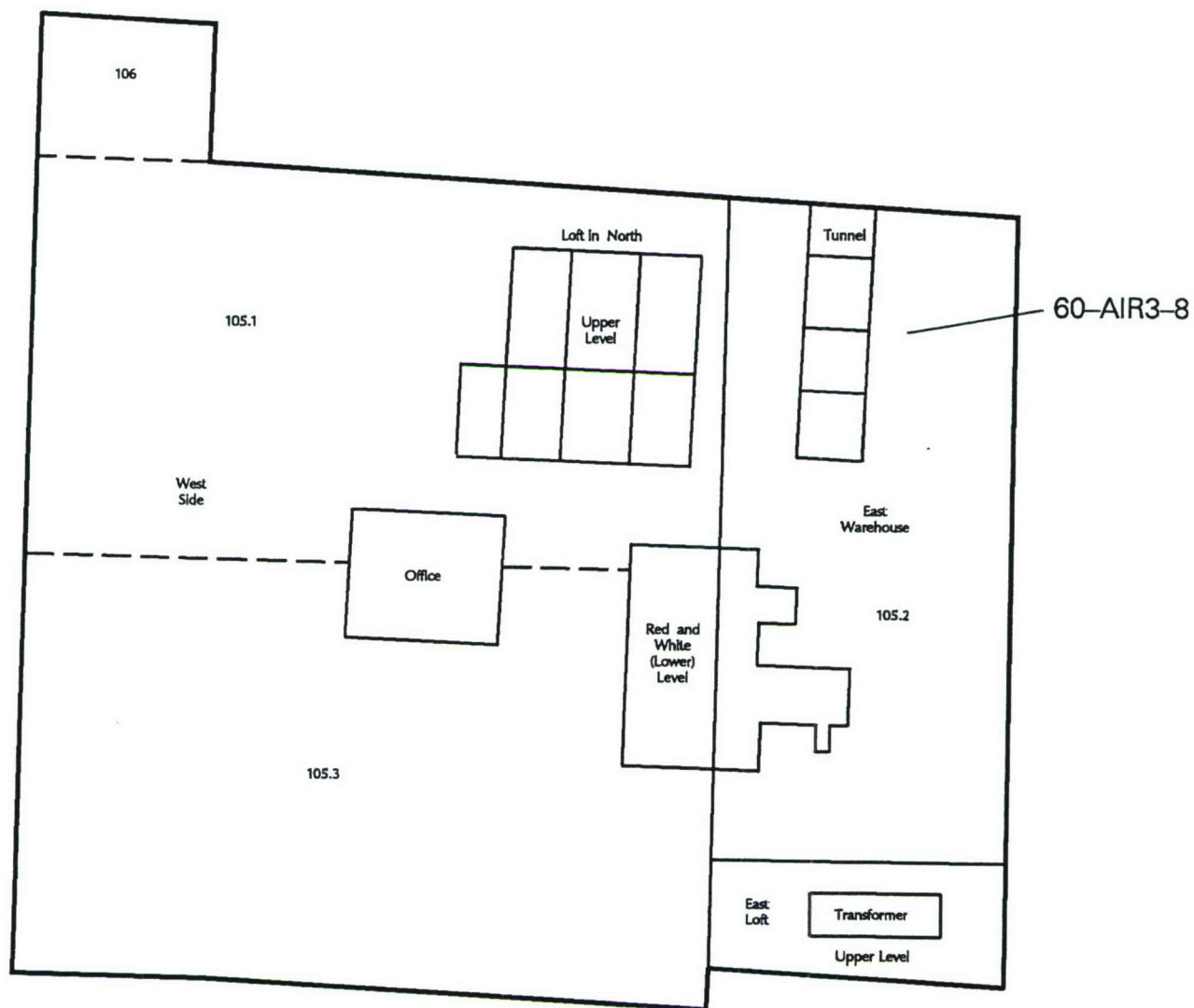
Army Materials Technology Laboratory

Phase 2 Air Sample Locations

Building No. 43
First Floor

—Z—

Approximate scale: 1 in - 30 ft



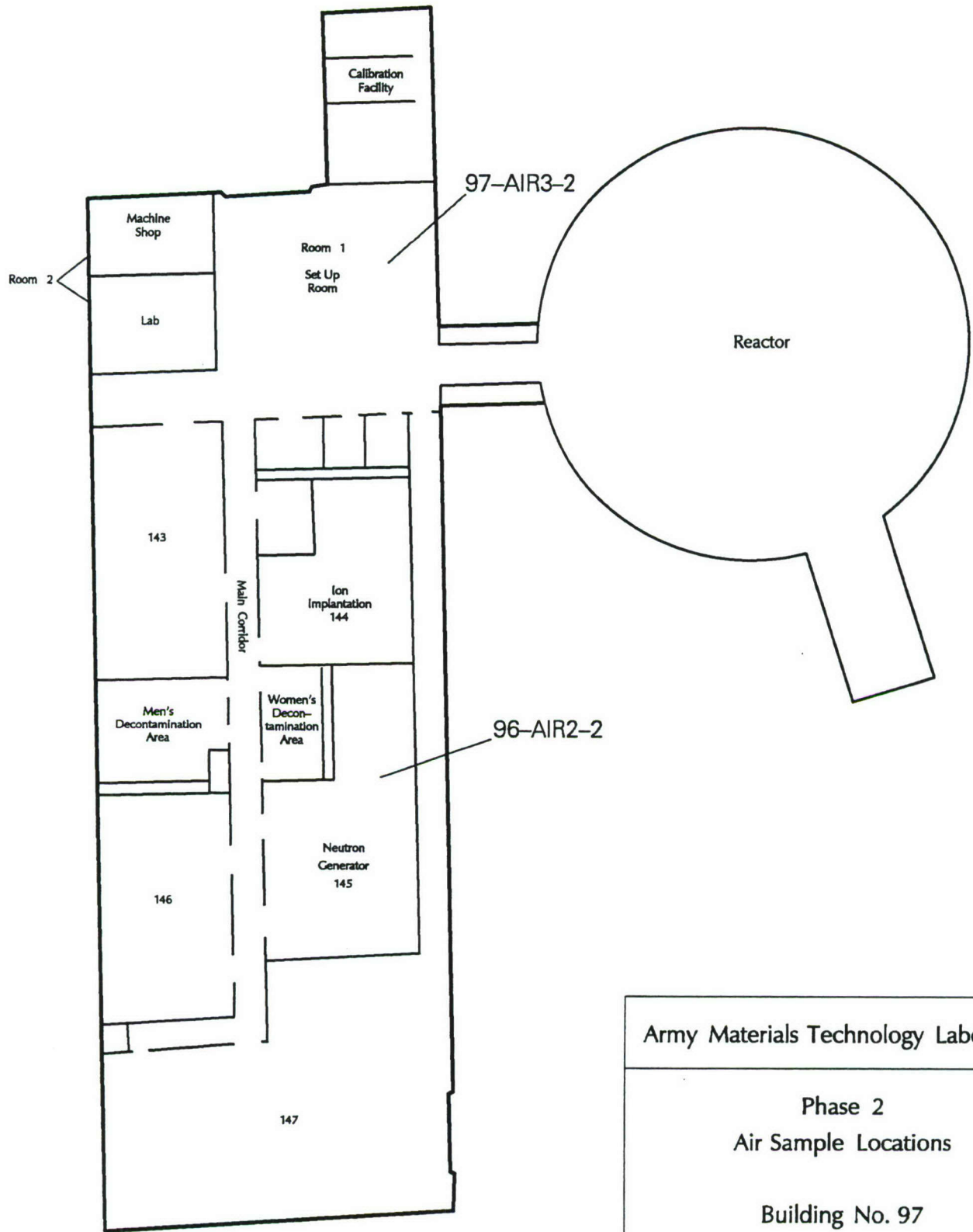
Army Materials Technology Laboratory

Phase 2 Air Sample Locations

Building No. 60
First Floor



Approximate scale: 1 in = 20 ft



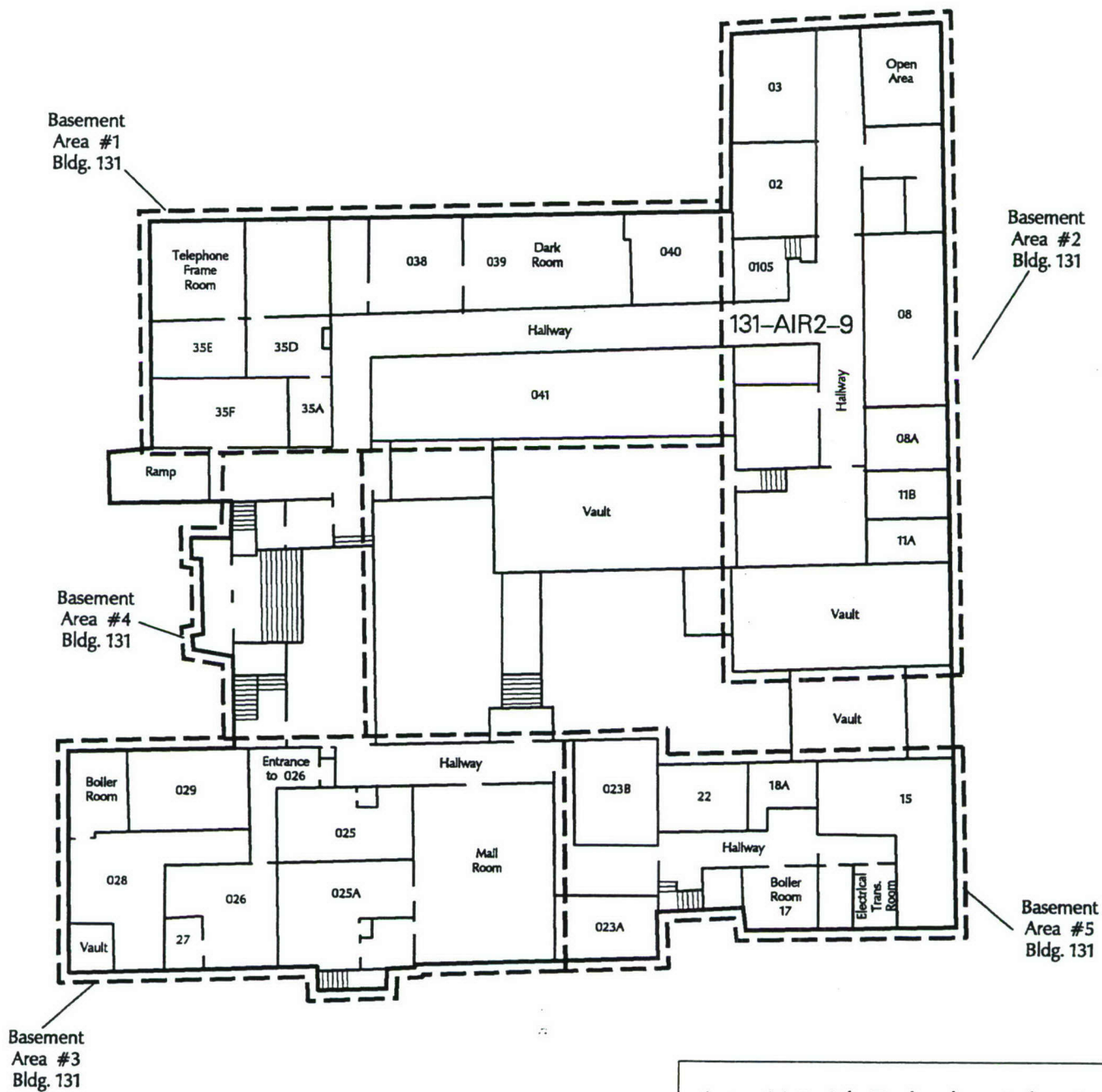
Army Materials Technology Laboratory

Phase 2 Air Sample Locations

Building No. 97
First Floor



Approximate scale: 1 in = 25 ft



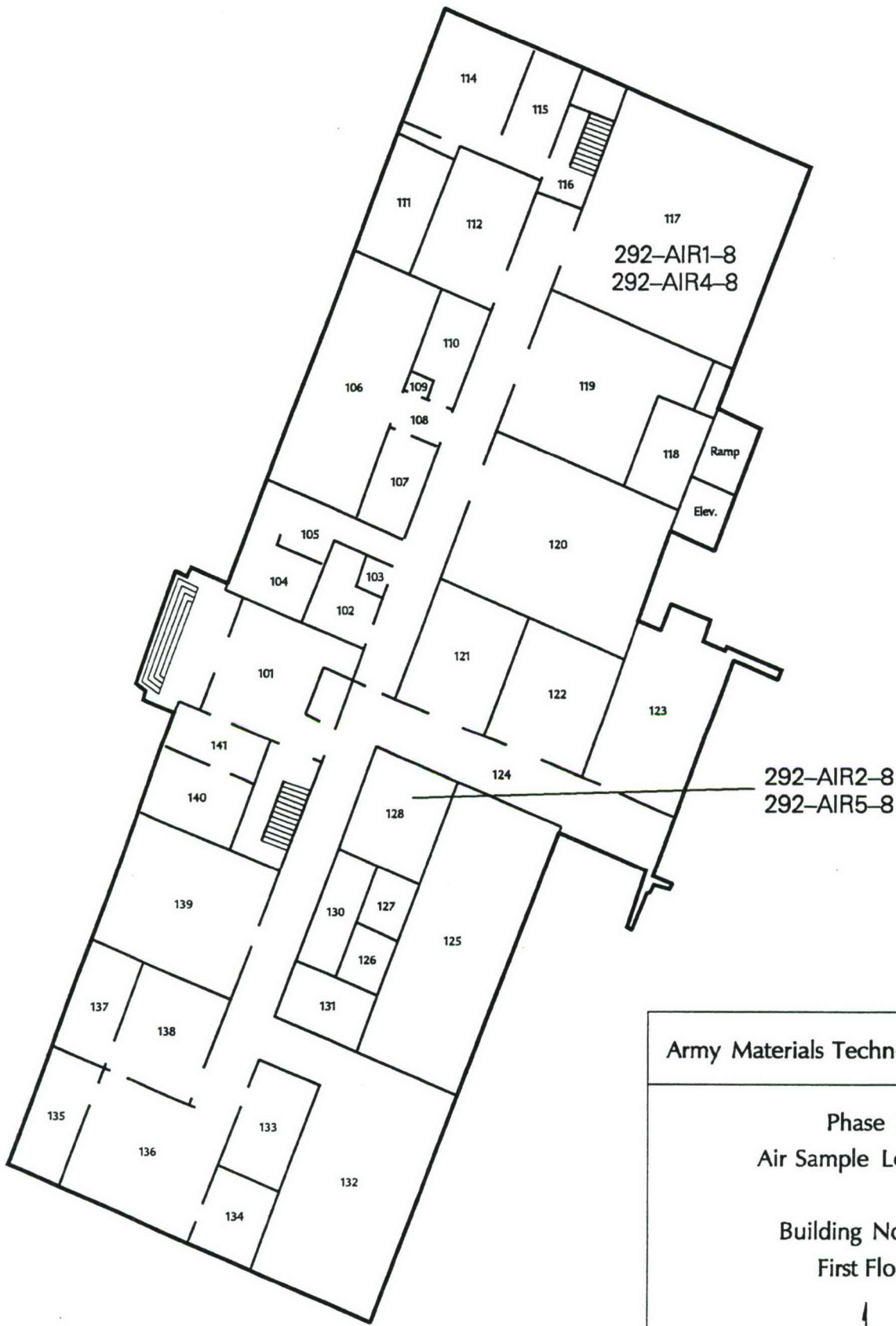
Army Materials Technology Laboratory

Phase 2 Air Sample Locations

Building No. 131
Basement



Approximate scale: 1 in = 30 ft



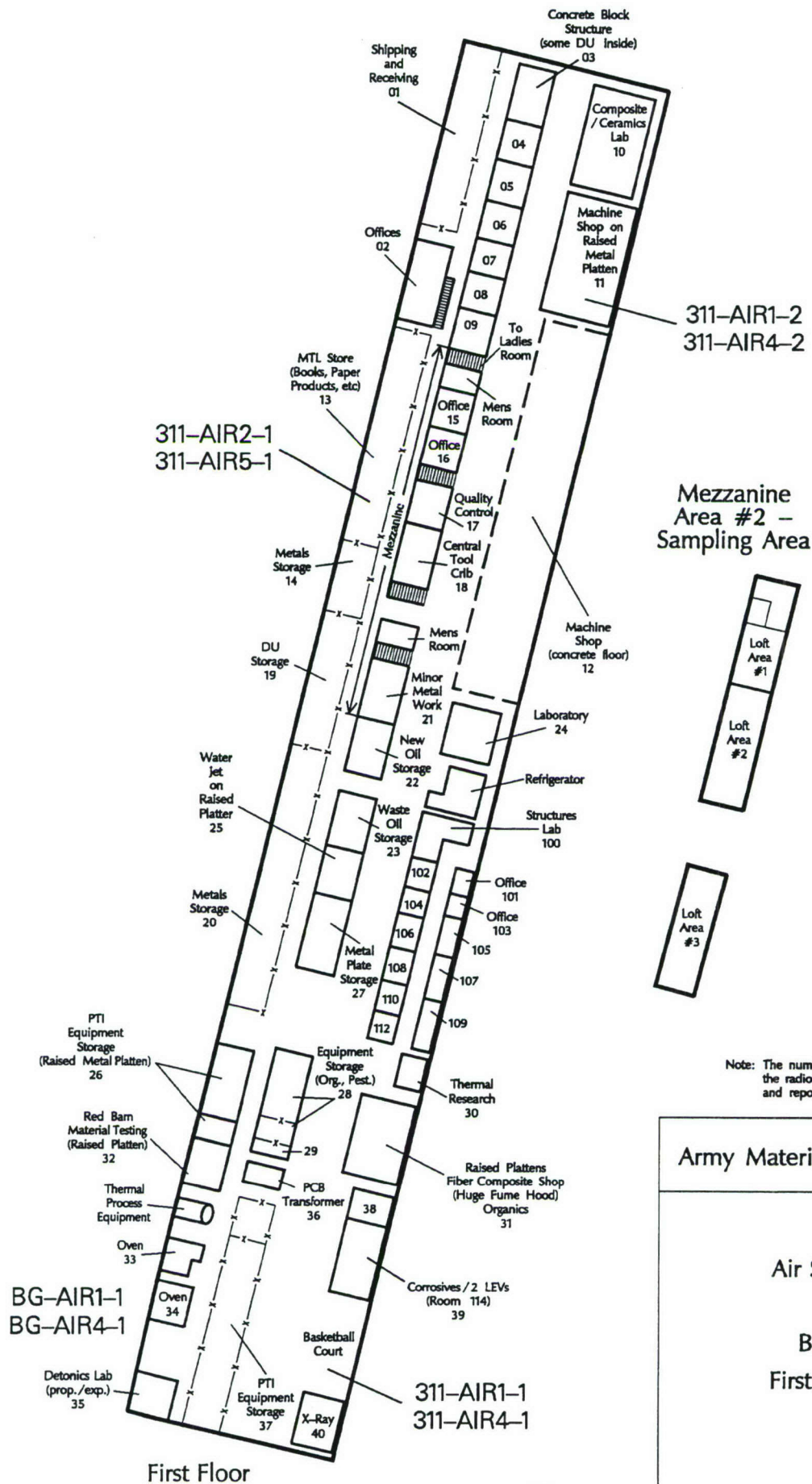
Army Materials Technology Laboratory

Phase 2
Air Sample Locations

Building No. 292
First Floor

N

Approximate scale: 1 in - 25 ft



Note: The numbered areas were established during the radiological survey to assist in cataloging and reporting results.

Army Materials Technology Laboratory

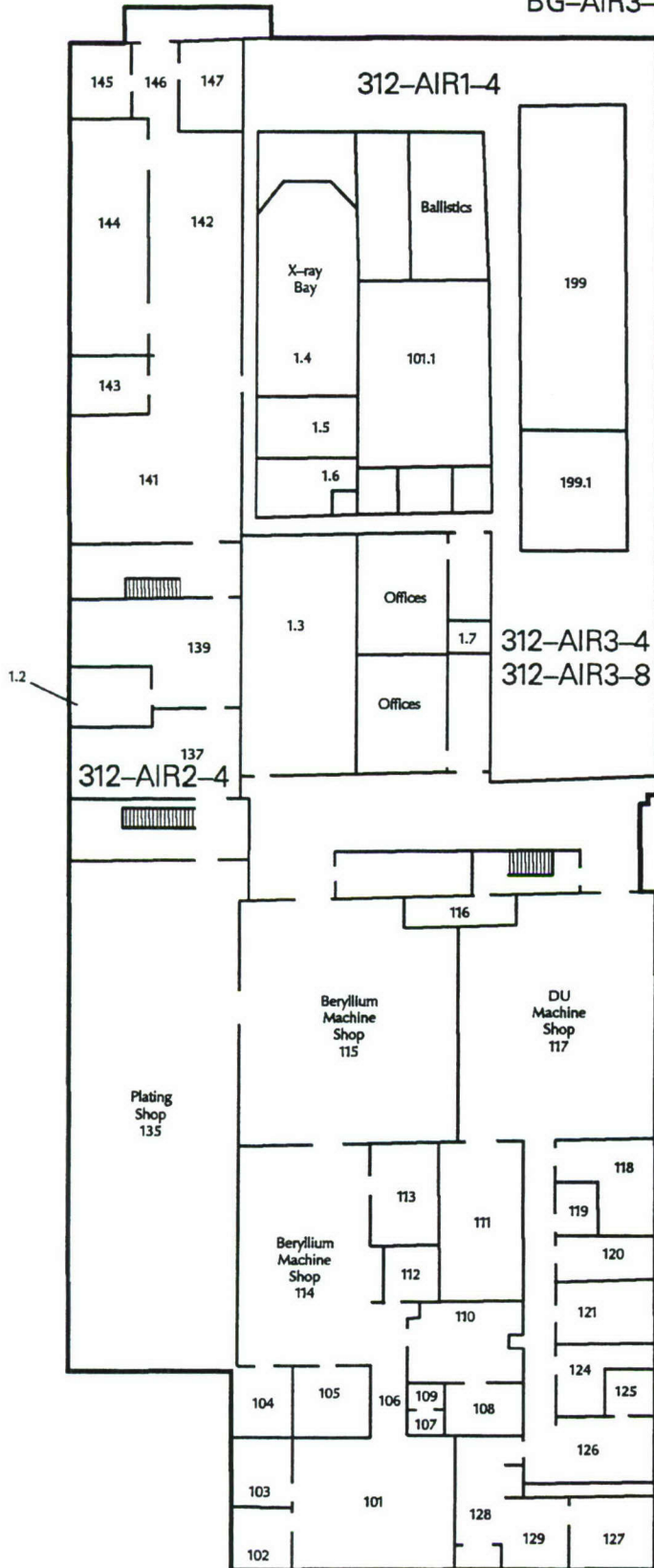
Phase 2 Air Sample Locations

Building No. 311
First Floor, Mezzanine

← Z →

Approximate scale: 1 in = 100 ft

BG-AIR3-4



BG-AIR2-8

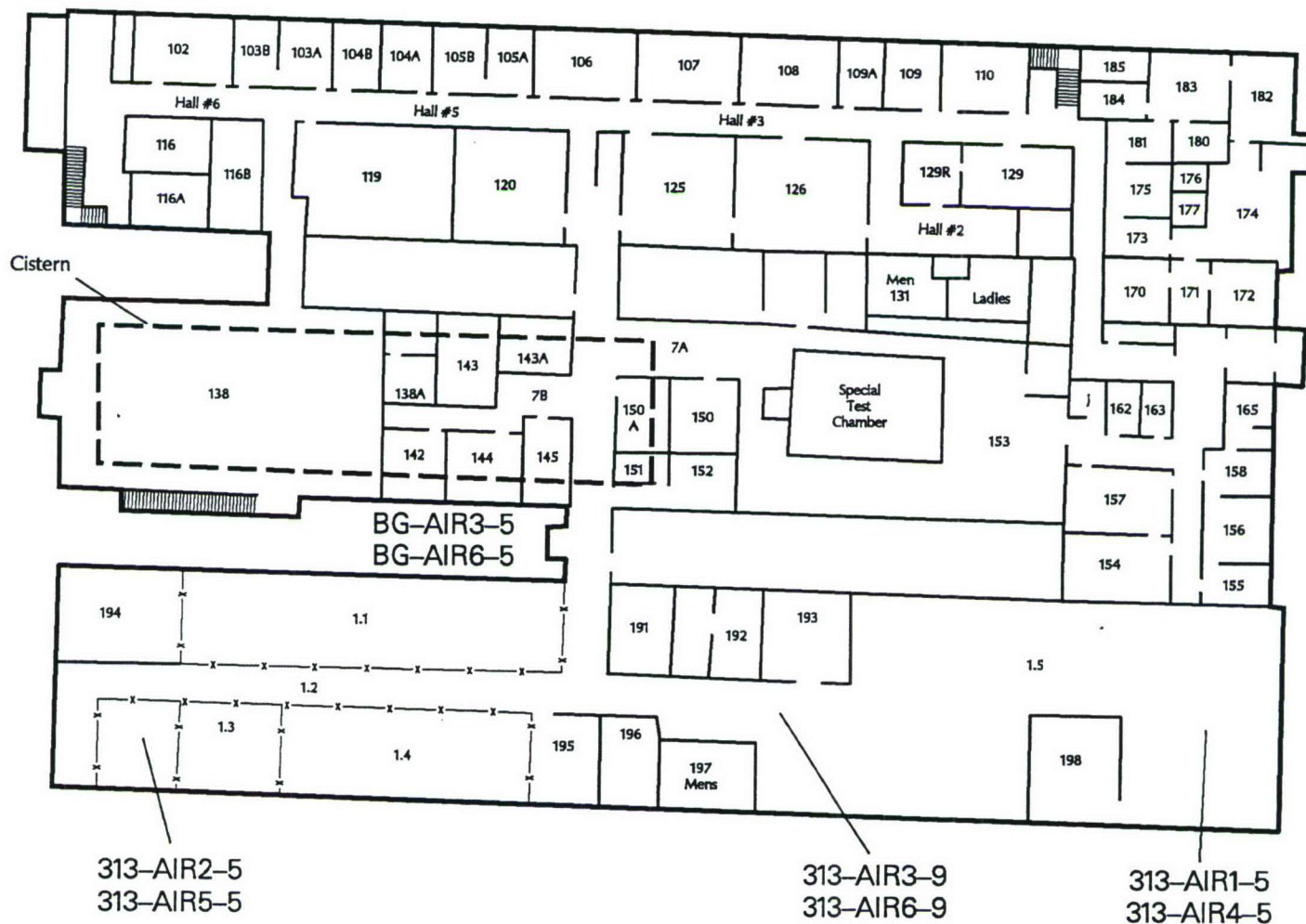
Army Materials Technology Laboratory

Phase 2
Air Sample Locations

Building No. 312
First Floor



Approximate scale: 1 in = 30 ft



Army Materials Technology Laboratory

Phase 2 Air Sample Locations

Building No. 313
First Floor



Approximate scale: 1 in = 40 ft

APPENDIX I.3
SUPPLEMENTAL AIR SAMPLING INFORMATION

USATHAMA – AMTL Air Sampling Schedule

SAMPLING DATE	BUILDING	SAMPLE LOCATION ID	VOC	SEMI	CYN	PM10	RAD	PCB	EXPOL (PUF)	EXPOL (DEN)			
12 NOV 91	311	311AIR1-1	CAN1-1	PUF1-1	2	IM1-1	2	TSP1-1	2	PUF1-1	2	DEN1-1	2
		311AIR2-1	CAN2-1	PUF2-1		IM2-1		TSP2-1		PUF2-1		DEN2-1	
13 NOV 91	311	311AIR1-2	CAN1-2	PUF1-2	1	IM1-2	1	TSP1-2	1	PUF1-2	1	DEN1-2	1
		97AIR2-2	CAN2-2	PUF2-2	2		2	TSP2-2	2	PUF2-2	2		
		97AIR3-2	CAN3-2	PUF3-2			PM3-2	TSP3-2		PUF3-2			
14 NOV 91	43	43AIR1-3	CAN1-3	PUF1-3	3			TSP1-3		PUF1-3			
		43AIR2-3	CAN2-3	PUF2-3			PM2-3	TSP2-3		PUF2-3			
		43AIR3-3	CAN3-3	PUF3-3			PM3-3	TSP3-3		PUF3-3			
15 NOV 91	312	312AIR1-4	CAN1-4	PUF1-4	3	IM1-4	3	TSP1-4	3				
		312AIR2-4	CAN2-4	PUF2-4		IM2-4		TSP2-4					
		312AIR3-4	CAN3-4	PUF3-4				TSP3-4					
16 NOV 91	313	313AIR1-5	CAN1-5	PUF1-5	2		2	TSP1-5	2				
		313AIR2-5	CAN2-5	PUF2-5			PM1-5	TSP2-5		PUF4-5	2	DEN1-5	2
18 NOV 91	39	39AIR1-6	CAN1-6	PUF1-6	2		2	TSP1-6	2				
		39AIR2-6	CAN2-6	PUF2-6			PM2-6	TSP2-6		PUF5-5	2	DEN2-5	2
19 NOV 91	39	39AIR1-7	CAN1-7	PUF1-7	1		1	TSP1-7	1				
		36AIR3-7	CAN3-7	PUF3-7	1		PM3-7	1		PUF4-6	2	DEN1-6	2
		243AIR2-7	CAN2-7	PUF2-7	1	IM2-7	1	TSP2-7	1	PUF5-6	1	DEN2-6	1
20 NOV 91	60	60AIR3-8	CAN3-8	PUF3-8	1		1						
		312AIR3-4											
		241AIR3-6				IM3-4	1						
21 NOV 91	292	292AIR1-8	CAN1-8	PUF1-8	2		2	TSP1-8	2				
		292AIR2-8	CAN2-8	PUF2-8			PM1-8	TSP2-8		PUF4-8	2	DEN1-8	2
22 NOV 91	37	37AIR1-9	CAN1-9	PUF1-9	1		1						
		313AIR3-9	CAN3-9	PUF3-9	1		PM1-9	1					
		131AIR3-9	CAN2-9	PUF2-9	1		PM3-9	TSP3-9	1	PUF6-9	1	DEN3-9	1
11/12,11/15, 11/16-18, 11/20&11/21	BACKGROUND	BGAIR3-1	CAN3-1	PUF3-1		IM3-1		TSP3-1		PUF3-1		DEN3-1	
		BGAIR3-5	CAN3-5	PUF3-5	3	IM3-4	3	TSP3-5	3	PUF6-1	2	DEN3-5	3
		BGAIR3-6	CAN3-6	PUF3-6		IM2-8	PM3-6	TSP3-6		PUF6-5	3	DEN3-6	3
QA/QC SAMPLES				2	29	1	1	2	2	1	1	1	
TOTAL SAMPLES				29	29	12	24	21	10	16	16	16	

Legend:

CAN = Passivated Canister Sampler.
 PUF = Polyurethane Foam Sampler.
 IM = Impinger Sampler (Metals).
 PM = Particulate Matter (PM-10) Sampler.
 TSP = Total Suspended Particulate Sampler.
 DEN = Denuder Tube Sampler.

*Note: BGIM3-4 and BGIM2-8 are cyanide samples collected at a different location from any of the other three background samples (BGAIR3-1, BGAIR3-5, BGAIR3-6). This gives a total of five background sampling locations.

APPENDIX I.4
AIR SAMPLER CALIBRATION INFORMATION

TSP/PM-10 CALIBRATION/AUDIT

CALIBRATION

DATE 11 NOV 91

SITE AMTL, WATERTOWN MASS.

SAMPLER NO TSP 1

SAMPLER S/N NA

CAL TEMP (F) 49

CAL PRESS (in/Hg) 29.70

ORIFICE NO E75

OPERATOR FEICK

MANO-

AT STANDARD CONDITIONS

METER DELTA H
(H₂O") (corr. to STD)

FLOW FLOW FLOW
(CMM) (LPM) (CFM)

UNLOADED	3.2	1.831	1.147	1147.4	40.51
LOADED	3.2	1.831	1.147	1147.4	40.51

ORIFICE WORK SHEET	
Qstd	DEL H
0.789	1.241
1.180	1.896
1.406	2.266
1.550	2.482
1.781	2.866

Regression Output:	
Constant (b) (b) (b)	-0.0280
Std Err of Y Est	0.0033
R Squared	1.0000
No. of Observations	5
Degrees of Freedom	3
X Coefficient(s) (m) (m) (m)	1.6199
Std Err of Coef.	0.0042

AUDIT

DATE 11 NOV 91

AUDIT PRESS (in/Hg) 29.70

AUDIT TEMP (F) 49

OPERATOR: CLARK

ORIFICE NO F56

MANO-

AT STANDARD CONDITIONS

METER DELTA H
(H₂O") (corr. to STD)

FLOW FLOW FLOW
(CMM) (LPM) (CFM)

UNLOADED	3.2	1.831	1.189	1189.1	41.99
LOADED	3.2	1.831	1.189	1189.1	41.99

ORIFICE WORK SHEET	
Qstd	DEL H
0.817	1.251
1.240	1.911
1.478	2.284
1.622	2.502
1.875	2.889

Regression Output:	
Constant (b) (b) (b)	-0.0118
Std Err of Y Est	0.0046
R Squared	1.0000
No. of Observations	5
Degrees of Freedom	3
X Coefficient(s) (m) (m) (m)	1.5495
Std Err of Coef.	0.0058

PERCENT DIFFERENCE	UNLOADED	3.51
	LOADED	3.51

STANDARD CONDITIONS: 29.92 in/Hg and 77 degrees F

TSP/PM-10 CALIBRATION/AUDIT

CALIBRATION

DATE 11 NOV 91

SITE AMTL, WATERTOWN MASS.

SAMPLER NO TSP 2

SAMPLER S/N NA

CAL TEMP (F) 49

CAL PRESS (in/Hg) 29.70

ORIFICE NO E75

OPERATOR FEICK

MANO-

AT STANDARD CONDITIONS

METER DELTA H
(H2O") (corr. to STD)

FLOW FLOW FLOW
(CMM) (LPM) (CFM)

UNLOADED	3.2	1.831	1.147	1147.4	40.51
LOADED	3.2	1.831	1.147	1147.4	40.51

ORIFICE WORK SHEET	
Qstd	DEL H
0.789	1.241
1.180	1.896
1.406	2.266
1.550	2.482
1.781	2.866

Regression Output:	
Constant (b) (b) (b)	-0.0280
Std Err of Y Est	0.0033
R Squared	1.0000
No. of Observations	5
Degrees of Freedom	3
X Coefficient(s) (m) (m) (m)	1.6199
Std Err of Coef.	0.0042

AUDIT

DATE 11 NOV 91

AUDIT PRESS (in/Hg) 29.70

AUDIT TEMP (F) 49

OPERATOR: CLARK

ORIFICE NO F56

MANO-

AT STANDARD CONDITIONS

METER DELTA H
(H2O") (corr. to STD)

FLOW FLOW FLOW
(CMM) (LPM) (CFM)

UNLOADED	3.2	1.831	1.189	1189.1	41.99
LOADED	3.2	1.831	1.189	1189.1	41.99

ORIFICE WORK SHEET	
Qstd	DEL H
0.817	1.251
1.240	1.911
1.478	2.284
1.622	2.502
1.875	2.889

Regression Output:	
Constant (b) (b) (b)	-0.0118
Std Err of Y Est	0.0046
R Squared	1.0000
No. of Observations	5
Degrees of Freedom	3
X Coefficient(s) (m) (m) (m)	1.5495
Std Err of Coef.	0.0058

PERCENT DIFFERENCE

UNLOADED 3.51
LOADED 3.51

STANDARD CONDITIONS: 29.92 in/Hg and 77 degrees F

TSP CALIBRATION - UNIT

3

DATE :24 JUL 91

AVG DAILY TEMP (F)

65.66

CAL. TEMPERATURE (F)

49

AVG DAILY PRESS. (in/Hg)

30.00

CAL. PRESS (in/Hg)

29.70

CAL. ORIFICE NUM. E75

OPERATOR: FEICK

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	FLOW (CMM)	FLOW (LPM)	FLOW (CFM)	DIAL GAUGE CORRECTED TO DAILY AVG
5.0	5.7	2.443	1.521	1520.7	53.69	2.261
4.2	3.6	1.942	1.214	1213.7	42.85	2.072
3.2	2.6	1.650	1.035	1035.2	36.55	1.809
2.2	1.4	1.211	0.766	766.4	27.06	1.500

ORIFICE E75

Regression Output:

CALIBRATION WORK SHEET

Qstd DEL H
0.789 1.241
1.180 1.896
1.406 2.266
1.550 2.482
1.781 2.866

Constant -0.041215
Std Err of Y Est 0.0103122
R Squared 0.9997911
No. of Observations 5
Degrees of Freedom 3
X Coefficient(s) 1.6338320
Std Err of Coef. 0.0136334

Regression Output:

Constant 0.744
Std Err of Y Est 0.069
R Squared 0.971
No. of Observations 4
Degrees of Freedom 2
X Coefficient(s) 0.029138
Std Err of Coef. 0.003588

FLOW RATE

MAG READING	(CFM)
2.50 2.50	28.738
2.60 2.50	29.275
2.60 2.60	29.813

PUF CALIBRATION - UNIT # 1

DATE :11 NOV 91

AVG DAILY TEMP (F)	65.66	CAL. TEMPERATURE (F)	49
AVG DAILY PRESS. (in/Hg)	30.00	CAL. PRESS (in/Hg)	29.68

CAL. ORIFICE NUM. 29C

OPERATOR: FEICK

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			DIAL GAUGE CORRECTED TO DAILY AVG
			FLOW (CMM)	FLOW (LPM)	FLOW (CFM)	
60	7.0	2.678	0.264	264.5	9.34	7.830
50	6.0	2.479	0.245	244.8	8.65	7.148
40	4.9	2.240	0.221	221.2	7.81	6.393
30	3.8	1.973	0.195	194.8	6.88	5.536
20	2.5	1.600	0.158	158.0	5.58	4.520
10	1.3	1.154	0.114	113.9	4.02	3.196

Regression Output:	
Constant (b)	-0.319
Std Err of Y Est	0.066
R Squared	0.999
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s) (m)	30.295986
Std Err of Coef.	0.5244228

PUF AUDIT

DATE :11 NOV 91

CURRENT TEMP (F) 49

CURRENT PRESSURE (in/Hg) 29.68

AUDIT ORIFICE NUM. 60C

OPERATOR: LOVENSHIMER

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			PERCENT ERROR
			AUDIT FLOW (CMM)	AUDIT FLOW (CFM)	CAL FLOW (CMM)	
60	6.5	2.608	0.269	9.50	0.264	-1.68
50	5.5	2.399	0.248	8.74	0.245	-1.10
40	4.7	2.218	0.229	8.09	0.221	-3.39
30	3.4	1.886	0.195	6.89	0.195	-0.12
20	2.2	1.517	0.157	5.55	0.158	0.47
10	1.1	1.073	0.112	3.94	0.114	1.92

STANDARD CONDITIONS: 29.92 in/Hg and 77 degrees F

PUF CALIBRATION – UNIT # 2

DATE :11 NOV 91

AVG DAILY TEMP (F)	65.66	CAL. TEMPERATURE (F)	49
AVG DAILY PRESS. (in/Hg)	30.00	CAL. PRESS (in/Hg)	29.68
CAL. ORIFICE NUM. 29C			
OPERATOR: FEICK			

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			DIAL GAUGE CORRECTED TO DAILY AVG
			FLOW (CMM)	FLOW (LPM)	FLOW (CFM)	
60	7.4	2.753	0.272	271.9	9.60	7.830
50	6.2	2.520	0.249	248.9	8.79	7.148
40	5.4	2.352	0.232	232.3	8.20	6.393
30	4.4	2.123	0.210	209.6	7.40	5.536
20	3.3	1.839	0.182	181.5	6.41	4.520
10	2.5	1.600	0.158	158.0	5.58	3.196

Regression Output:	
Constant (b)	-2.947
Std Err of Y Est	0.163
R Squared	0.993
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s) (m)	39.917127
Std Err of Coef.	1.7015057

PUF AUDIT

DATE :11 NOV 91

CURRENT TEMP (F)	49
CURRENT PRESSURE (in/Hg)	29.68
AUDIT ORIFICE NUM. 60C	
OPERATOR: LOVENSHIMER	

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			PERCENT ERROR
			AUDIT FLOW (CMM)	AUDIT FLOW (CFM)	CAL FLOW (CMM)	
60	6.8	2.668	0.275	9.71	0.272	-1.15
50	5.8	2.464	0.254	8.98	0.249	-2.08
40	4.9	2.265	0.234	8.25	0.232	-0.65
30	4.0	2.046	0.211	7.46	0.210	-0.83
20	3.1	1.801	0.186	6.58	0.182	-2.57
10	2.1	1.483	0.154	5.43	0.158	2.80

STANDARD CONDITIONS: 29.92 in/Hg and 77 degress F

PUF CALIBRATION - UNIT # 3

DATE :11 NOV 91

AVG DAILY TEMP (F)	65.66	CAL. TEMPERATURE (F)	49
AVG DAILY PRESS. (in/Hg)	30.00	CAL. PRESS (in/Hg)	29.68
CAL. ORIFICE NUM.		29C	
OPERATOR: FEICK			

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			DIAL GAUGE CORRECTED TO DAILY AVG
			FLOW (CMM)	FLOW (LPM)	FLOW (CFM)	
60	7.2	2.716	0.268	268.2	9.47	7.830
50	6.2	2.520	0.249	248.9	8.79	7.148
40	5.1	2.286	0.226	225.7	7.97	6.393
30	3.9	1.999	0.197	197.4	6.97	5.536
20	2.7	1.663	0.164	164.2	5.80	4.520
10	1.2	1.109	0.109	109.4	3.86	3.196

Regression Output:	
Constant (b)	-0.147
Std Err of Y Est	0.130
R Squared	0.995
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s) (m)	29.035315
Std Err of Coef.	0.9881189

PUF AUDIT

DATE :11 NOV 91

CURRENT TEMP (F)	49
CURRENT PRESSURE (in/Hg)	29.68
AUDIT ORIFICE NUM. 60C	
OPERATOR: LOVENSHIMER	

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			PERCENT ERROR
			AUDIT FLOW (CMM)	AUDIT FLOW (CFM)	CAL FLOW (CMM)	
60	6.8	2.668	0.275	9.71	0.268	-2.49
50	5.9	2.485	0.256	9.05	0.249	-2.91
40	4.8	2.241	0.231	8.17	0.226	-2.46
30	3.7	1.968	0.203	7.18	0.197	-2.96
20	2.4	1.585	0.164	5.80	0.164	0.02
10	1.1	1.073	0.112	3.94	0.109	-2.08

STANDARD CONDITIONS: 29.92 in/Hg and 77 degrees F

PUF CALIBRATION - UNIT # 4

DATE :11 NOV 91

AVG DAILY TEMP (F)	65.66	CAL. TEMPERATURE (F)	49
AVG DAILY PRESS. (in/Hg)	30.00	CAL. PRESS (in/Hg)	29.68

CAL. ORIFICE NUM. 29C

OPERATOR: FEICK

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			DIAL GAUGE CORRECTED TO DAILY AVG
			FLOW (CMM)	FLOW (LPM)	FLOW (CFM)	
60	7.2	2.716	0.268	268.2	9.47	7.830
50	6.0	2.479	0.245	244.8	8.65	7.148
40	4.9	2.240	0.221	221.2	7.81	6.393
30	3.6	1.920	0.190	189.6	6.70	5.536
20	2.5	1.600	0.158	158.0	5.58	4.520
10	1.2	1.109	0.109	109.4	3.86	3.196

Regression Output:	
Constant (b)	-0.047
Std Err of Y Est	0.046
R Squared	0.999
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s) (m)	29.082907
Std Err of Coef.	0.3497569

PUF AUDIT

DATE :11 NOV 91

CURRENT TEMP (F) 49

CURRENT PRESSURE (in/Hg) 29.68

AUDIT ORIFICE NUM. 60C

OPERATOR: LOVENSHIMER

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			PERCENT ERROR
			AUDIT FLOW (CMM)	AUDIT FLOW (CFM)	CAL FLOW (CMM)	
60	6.6	2.628	0.271	9.57	0.268	-1.03
50	5.8	2.464	0.254	8.98	0.245	-3.68
40	4.5	2.170	0.224	7.91	0.221	-1.28
30	3.3	1.858	0.192	6.79	0.190	-1.34
20	2.2	1.517	0.157	5.55	0.158	0.47
10	1.0	1.023	0.107	3.76	0.109	2.62

STANDARD CONDITIONS: 29.92 in/Hg and 77 degrees F

PUF CALIBRATION - UNIT # 5

DATE :11 NOV 91

AVG DAILY TEMP (F) 65.66 CAL. TEMPERATURE (F) 49
 AVG DAILY PRESS. (in/Hg) 30.00 CAL. PRESS (in/Hg) 29.68
 CAL. ORIFICE NUM. 29C
 OPERATOR: FEICK

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			DIAL GAUGE CORRECTED TO DAILY AVG
			FLOW (CMM)	FLOW (LPM)	FLOW (CFM)	
60	7.4	2.753	0.272	271.9	9.60	7.830
50	6.2	2.520	0.249	248.9	8.79	7.148
40	4.9	2.240	0.221	221.2	7.81	6.393
30	3.7	1.947	0.192	192.2	6.79	5.536
20	2.5	1.600	0.158	158.0	5.58	4.520
10	0.9	0.960	0.095	94.7	3.34	3.196

Regression Output:
 Constant (b) 0.524
 Std Err of Y Est 0.141
 R Squared 0.995
 No. of Observations 6
 Degrees of Freedom 4
 X Coefficient(s) (m) 26.310722
 Std Err of Coef. 0.9696878

PUF AUDIT

DATE :11 NOV 91

CURRENT TEMP (F) 49
 CURRENT PRESSURE (in/Hg) 29.68
 AUDIT ORIFICE NUM. 60C
 OPERATOR: LOVENSHIMER

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			PERCENT ERROR
			AUDIT FLOW (CMM)	AUDIT FLOW (CFM)	CAL FLOW (CMM)	
60	7.0	2.707	0.279	9.85	0.272	-2.56
50	5.8	2.464	0.254	8.98	0.249	-2.08
40	4.8	2.241	0.231	8.17	0.221	-4.39
30	3.5	1.914	0.198	6.99	0.192	-2.85
20	2.1	1.483	0.154	5.43	0.158	2.80
10	0.9	0.971	0.101	3.57	0.095	-6.43

STANDARD CONDITIONS: 29.92 in/Hg and 77 degrees F

PUF CALIBRATION - UNIT # 6

DATE :11 NOV 91

AVG DAILY TEMP (F) 65.66 CAL. TEMPERATURE (F) 49
 AVG DAILY PRESS. (in/Hg) 30.00 CAL. PRESS (in/Hg) 29.68
 CAL. ORIFICE NUM. 29C
 OPERATOR: FEICK

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			DIAL GAUGE CORRECTED TO DAILY AVG
			FLOW (CMM)	FLOW (LPM)	FLOW (CFM)	
60	7.3	2.735	0.270	270.1	9.54	7.830
50	6.3	2.540	0.251	250.9	8.86	7.148
40	5.1	2.286	0.226	225.7	7.97	6.393
30	3.8	1.973	0.195	194.8	6.88	5.536
20	2.8	1.694	0.167	167.2	5.90	4.520
10	1.3	1.154	0.114	113.9	4.02	3.196

Regression Output:	
Constant (b)	-0.296
Std Err of Y Est	0.107
R Squared	0.997
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s) (m)	29.555320
Std Err of Coef.	0.8297361

PUF AUDIT

DATE :11 NOV 91

CURRENT TEMP (F) 49
 CURRENT PRESSURE (in/Hg) 29.68
 AUDIT ORIFICE NUM. 60C
 OPERATOR: LOVENSHIMER

DIAL GAUGE READING	MANO- METER (in. H2O)	DELTA H (corr. to STD)	AT STANDARD CONDITIONS			PERCENT ERROR
			AUDIT FLOW (CMM)	AUDIT FLOW (CFM)	CAL FLOW (CMM)	
60	6.6	2.628	0.271	9.57	0.270	-0.35
50	5.7	2.442	0.252	8.90	0.251	-0.44
40	4.7	2.218	0.229	8.09	0.226	-1.43
30	3.5	1.914	0.198	6.99	0.195	-1.54
20	2.3	1.552	0.161	5.68	0.167	4.02
10	1.2	1.121	0.117	4.12	0.114	-2.35

STANDARD CONDITIONS: 29.92 in/Hg and 77 degrees F

Appendix J
Calculations for Determination of
Guidelines for Accessible
Residual Surface Contamination

CALCULATION OF CLEANUP STANDARDS FOR EXPOSURE TO CONTAMINATED INTERIOR BUILDING SURFACES

OVERVIEW

The New Jersey Department of Environmental Protection (NJDEP) provides technical guidance on development of numerical cleanup criteria (standards) for protection of human health from exposure to contaminated building interior surfaces (NJDEP, 1992). These numerical criteria represent maximum concentrations of chemicals that could be present on contaminated surfaces without adverse human health effects from long-term habitation or use of a building in industrial or nonindustrial settings. Procedures are available that allow development of numerical criteria for both cancer and noncancer health effects (NJDEP, 1992). Procedures make use of standard exposure assumptions, where appropriate.

EXPOSURE ASSUMPTIONS

The NJDEP bases its numerical cleanup criteria on the following assumptions for humans exposed to building interior surfaces:

- Twenty five percent of the surface area below six feet in height of a room 10 x 8 feet (8.9 m²) is the "accessible area" of a room that contributes to a dose by the dermal, ingestion, and inhalation routes over a lifetime.
- One percent of the area above 6 feet (0.19 m²) is the inaccessible area of a room that contributes to a dose by the same routes.
- Fifty percent of the contamination on the surfaces described in the first two assumptions is assumed to be the dose (transferred to a human receptor). This is represented in the denominator of the equations for the numerical criteria as a factor of 0.5.
- A body weight of an adult male is assumed. The value for this parameter is 70 kg.
- An average length of life of 70 years and 365 days/year are assumed for the exposure time factors for calculating numerical cleanup criteria for Group A, B and C chemicals. These represent habitation conditions.
- A smaller industrial time factor (0.673) and length of time at the site (9,125 days) are used to calculate numerical cleanup criteria for noncancer health effects (Group D and E chemicals). The smaller industrial time is used because it leads to more stringent standards. The industrial time factor is based on a five-day work week and a 49-week work year.

CALCULATION OF NUMERICAL CRITERIA

Surface cleanup criteria are expressed in area-based concentration units, mg/cm². Two numerical criteria are calculated for each chemical, a criterion for accessible areas and a criterion for inaccessible areas. The criterion for inaccessible areas is simply twice the value calculated for accessible areas. Thus,

$$IS \text{ (mg/m}^2\text{)} = 2 \times AS \text{ (mg/m}^2\text{)} \quad (1)$$

where:

IS = Numerical criterion for inaccessible areas

AS = Numerical criterion for accessible areas

Target Dose

Numerical criteria are calculated for a target dose that is not exceeded when the criterion for the "inaccessible area" above six feet is two times the criterion for the "accessible area" below six feet. This shows up as a factor of two multiplied by the surface area for the inaccessible area in the denominator of the equations.

Numerical Criteria for Cancer Effects

Numerical criteria are established for an excess lifetime cancer risk of one in one million (1E-6) for Group A and Group B carcinogens and one in one hundred thousand (1E-5) for Group C carcinogens. Each target risk level is divided by the cancer slope factor to yield the risk specific dose (RSD) for the chemical. For the 1E-6 risk level,

$$RSD \text{ (mg/kg/day)} = \frac{1 \times 10^{-6}}{SF \text{ (mg/kg/day)}^{-1}} \quad (2)$$

Where:

RSD = Risk-specific dose

SF = Cancer slope factor

The numerical standard for accessible areas is given by:

$$AS \text{ (mg/m}^2\text{)} = \frac{RSD \text{ (mg/kg/day)} \times 70 \text{ kg} \times 70 \text{ yr} \times 365 \text{ days/yr}}{0.5 [8.9 \text{ m}^2 + (2 \times 0.19 \text{ m}^2)]} \quad (3)$$

Numerical Criteria for Noncancer Effects

Numerical criteria for Group D and Group E chemicals (no evidence of cancer) are based on noncancer effects. A reference dose (RfD) is used in place of the RSD in the equation for these

chemicals. The RfD is adjusted downward to account for exposure to a chemical from other sources, which is represented by a mean dietary intake (MDI) factor. The RfD and MDI are in units of mg/kg/day. The numerical standard for accessible areas is given by:

$$AS(mg/m^2) = \frac{[RfD - MDI](mg/kg/day) \times 70kg \times 0.673 \times 9125 \text{ days}}{0.5 [8.9 \text{ m}^2 + (2 \times 0.19 \text{ m}^2)]} \quad (4)$$

NUMERICAL CRITERIA FOR CHEMICALS DETECTED IN WIPE SAMPLES AT THE MTL SITE

Table 1 contains the human health risk-based numerical cleanup criteria for interior surfaces calculated for chemicals detected in wipe samples of buildings at the MTL site.

REFERENCE

NJDEP, 1992. New Jersey Department of Environmental Protection. Technical basis and background for cleanup standards for contaminated sites. Trenton, NJ: The New Jersey Department of Environmental Protection. N.J.A.C. 7:26D.

TABLE J-1 CLEANUP STANDARDS FOR BUILDING INTERIOR SURFACES

Chemical	ASc, mg/m ²	ASnc, mg/m ²
Trichlorobenzene, 1,2,4-	NA	1.2E+03
Dichlorobenzene, 1,2-	NA	8.3E+03
Dichlorobenzene, 1,3-	NA	NA
Dichlorobenzene, 1,4-	1.6E+02	NA
Trinitrotoluene, 2,4,6-	1.3E+02	4.6E+01
Dinitrotoluene, 2,4-	5.7E-01	1.9E+02
Fluorophenol, 2-	NA	NA
Methylnaphthalene, 2-	NA	3.7E+03
Methylphenol, 4-	NA	4.6E+03
Alpha-BHC	6.1E-02	NA
Alpha-Endosulfan	NA	3.8E+00
Silver	NA	3.5E+02
Aluminum	NA	NA
Aldrin	2.3E-02	2.8E+00
Acenaphthene	NA	5.6E+03
Acenaphthylene	NA	5.6E+03
Anthracene	NA	2.8E+04
Arsenic	2.2E-01	-4.0E+01 ^(a)
Bis(2-ethylhexyl)phthalate	2.8E+01	1.9E+03
Barium	NA	4.1E+03
Benzo(a)anthracene	6.6E-02	2.8E+03
Benzo(a)pyrene	6.6E-02	2.8E+03
Benzo(b)fluoranthene	6.6E-02	2.8E+03
Butylbenzylphthalate	NA	1.9E+04
Beryllium	9.0E-02	4.6E+02
Beta-Endosulfan	NA	3.4E+00
Benzoic Acid	NA	3.7E+05
Benzo(g,h,i)perylene	NA	2.8E+03
Benzo(k)fluoranthene	6.6E-02	2.8E+03
Benzyl Alcohol	NA	2.8E+04
Calcium	NA	NA
Cadmium	NA	2.8E+01 ^(b)
Chrysene	6.6E-02	2.8E+03
Cobalt	NA	NA
Chromium (VI)	NA	3.8E+02
Copper	NA	8.6E+02

(a) Value is less than one because MDI > RfD.

(b) Value is promulgated NJDEP Standard.

Table J-1 - continued

Chemical	ASc, mg/m ²	ASnc, mg/m ²
Cyanide	NA	1.9E+03
Dibenzo(a,h)anthracene	6.6E-02	2.8E+03
Delta-BHC	NA	NA
Diethylphthalate	NA	7.4E+04
Diisopropylmethyl phosphonate	NA	NA
Dieldrin	2.4E-02	3.9E+00
Dimethylphenol	NA	1.9E+03
Di-n-butylphthalate	NA	9.3E+03
Di-n-octylphthalate	NA	1.9E+03
Endrin	NA	2.8E+01
Endrin aldehyde	NA	NA
Endrin ketone	NA	NA
Endosulfan sulfate	NA	NA
Fluoranthene	NA	3.7E+03
Iron	NA	NA
Fluorene	NA	3.7E+03
Lead	NA	2.0E+00
		(Walls and Floors) ^(a)
	NA	5.0E+00
		(Window Sills) ^(a)
	NA	9.0E+00
		(Window Wells) ^(a)
Mercury	NA	2.4E+01 ^(b)
Cyclotetramethylenetetranitramine	NA	4.6E+03
Heptachlor	8.6E-02	4.5E+01
Heptachlor epoxide	4.2E-02	9.4E-01
Isodrine	NA	NA
Potassium	NA	NA
Gamma-BHC (Lindane)	3.0E-01	-6.6E+00 ^(c)
Methoxychlor	NA	4.6E+02
Magnesium	NA	NA
Manganese	NA	4.2E+03
Sodium	NA	NA
Naphthalene	NA	3.7E+03

(a) Value is promulgated NJDEP Standard.

(b) Value is promulgated NJDEP Standard.

(c) Value is less than one because MDI > RfD.

Table J-1 - continued

Chemical	ASc, mg/m ²	ASnc, mg/m ²
Nickel	NA	1.6E+03
Nitrate/Nitrite		
Nitrate	NA	1.5E+05
Nitrite	NA	9.3E+03
Aroclor-1254	2.7E-01	NA
Aroclor-1260	2.7E-01	NA
Pentachlorophenol	3.2E+00	7.9E+02
Phenanthrene	NA	2.8E+03
Phenol	NA	5.6E+04
DDD	1.6E+00	NA
DDE	1.1E+00	NA
DDT	1.1E+00	4.3E+01
Pyrene	NA	2.8E+03
RDX	3.5E+01	2.8E+02
Antimony	NA	3.0E+01
Selenium	NA	2.6E+02
Thallium	NA	-1.5E+00 ^(a)
Vanadium	NA	6.5E+02
Zinc	NA	-1.9E+04 ^(b)

(a) Value is less than one because MDI > RfD.